



## Contact

Anne Burger Entrekin  
Managing Director  
70 Northeast Loop 410, Suite 710  
San Antonio, Texas 78216

(210) 308-2204 Telephone  
[anne.burgerentrekin@hilltopsecurities.com](mailto:anne.burgerentrekin@hilltopsecurities.com)

---

January 24, 2017



# Water For Texas Conference **Bonds 101: Demystifying the Bond Issuance Process**

## What are Municipal Bonds?

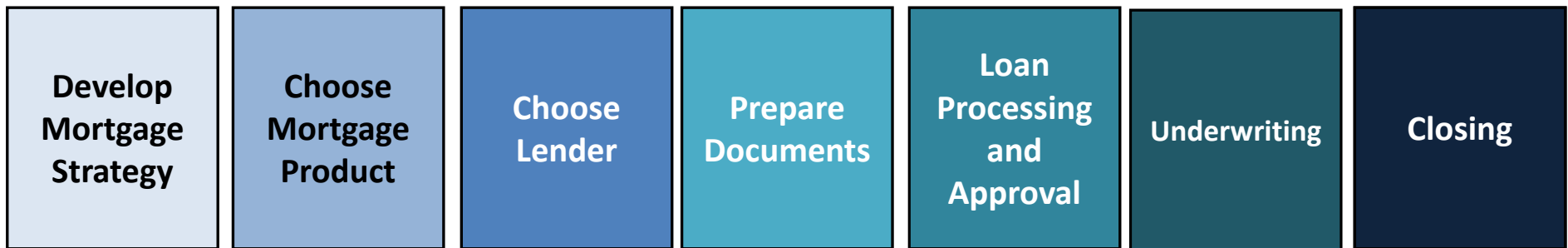
---

- A debt security or debt obligation issued by or on behalf of a local authority or a political subdivision
- The debt security for the local authority or political subdivision is like an IOU
- The debt security for the investor is like a loan that gets repaid, usually with interest
- Political Subdivisions utilize municipal bonds to create a better asset/liability match

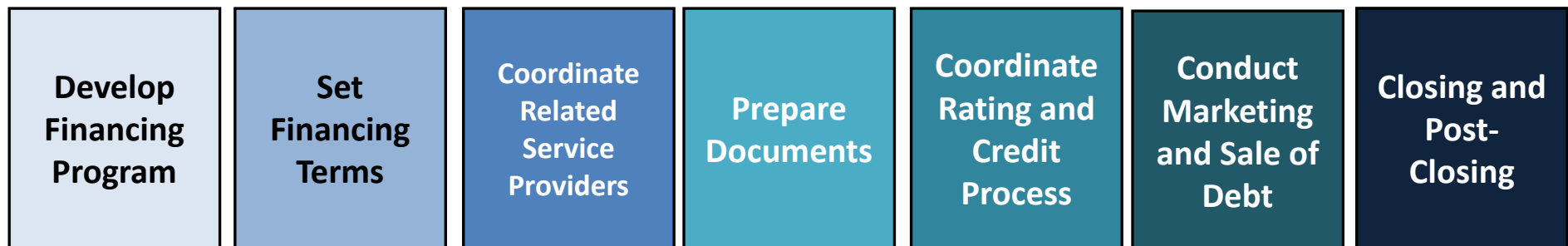
# How are the Mortgage Process and Debt Issuance Process Similar?

## Customary Phases for Mortgages and Municipal Bonds

---

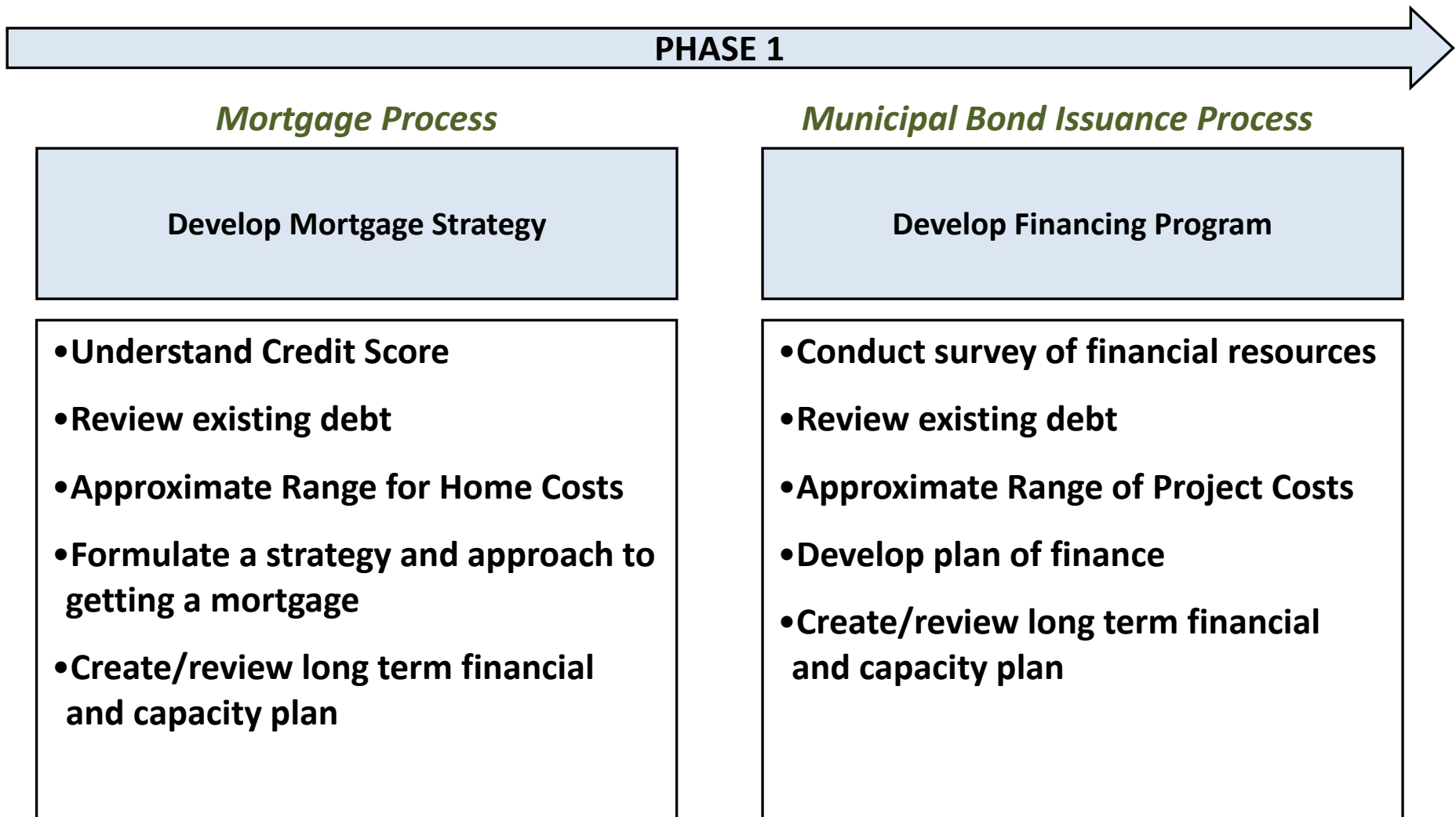


### *Customary Phases in Municipal Bond Issuance Process*

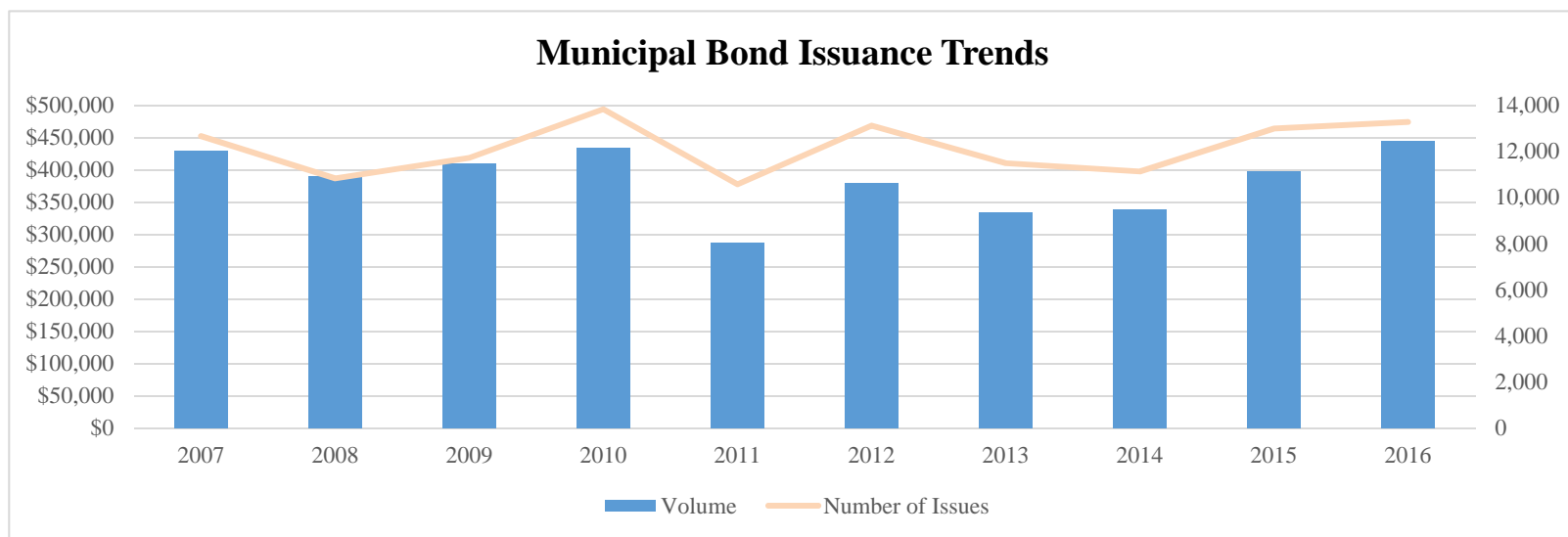
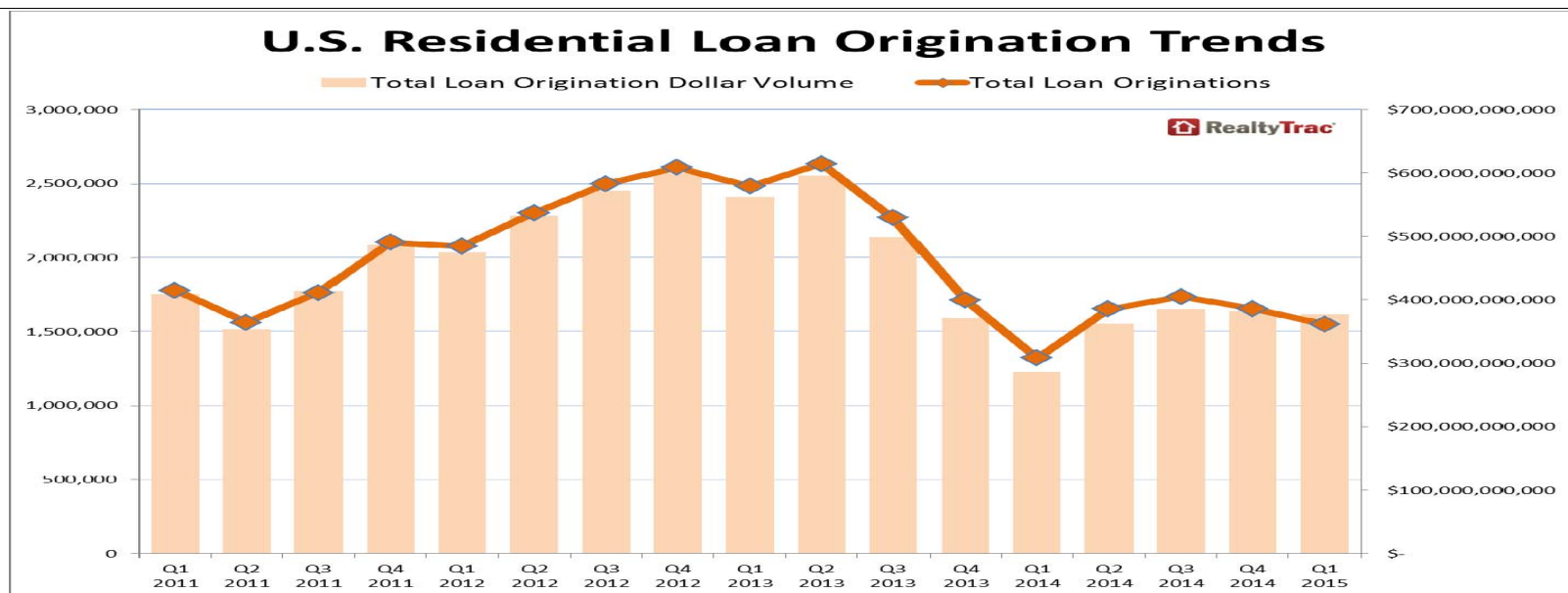


## Phase 1 for Mortgages and Municipal Bonds

---



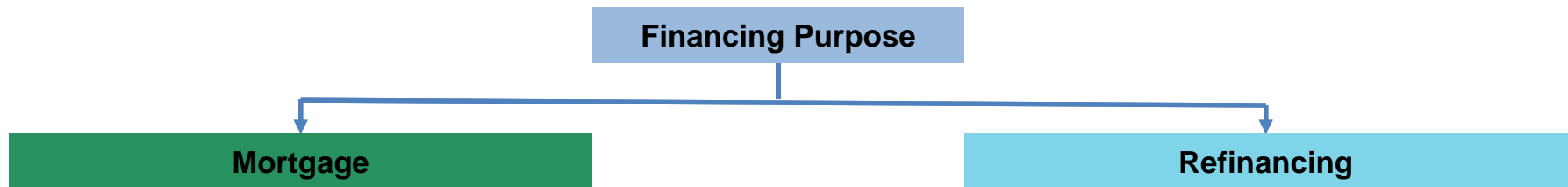
# Mortgage and Municipal Bond Issuance Volume



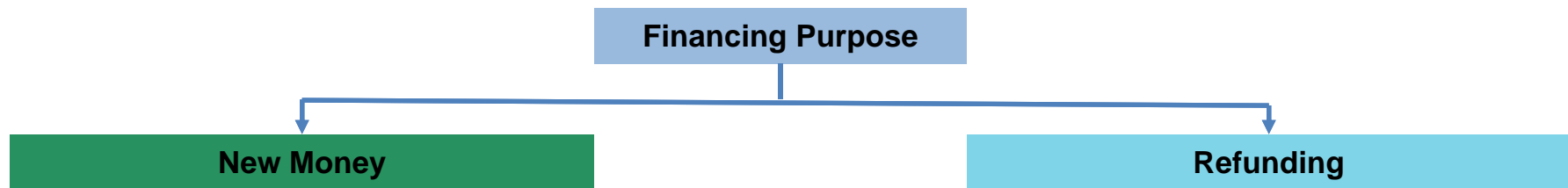
## What Are Funds Used For?

---

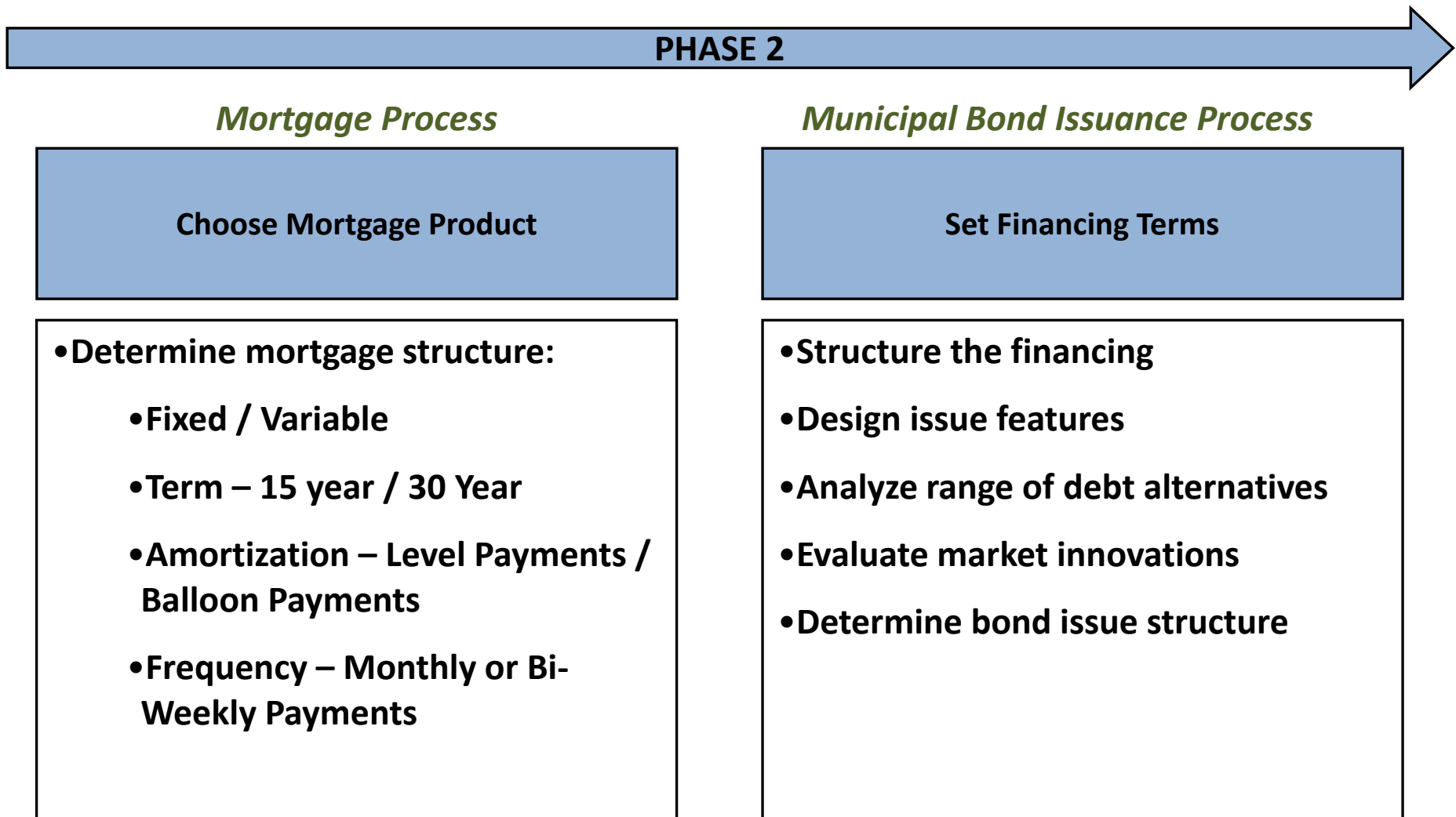
### Mortgages



### Municipal Bonds



## Phase 2 for Mortgages and Municipal Bonds





## Fixed Rate vs. Variable Rate

### Fixed Rate Pros

- Future credit and rate risk shifted to investors
- Most common form of debt for mortgages and municipal bonds
- Budget certainty

### Fixed Rate Cons

- Historically higher cost than variable rate bonds
- Potentially expensive to restructure
- Bonds - Typically not callable for 10 years
- Bonds - Little flexibility for borrower once bonds are issued

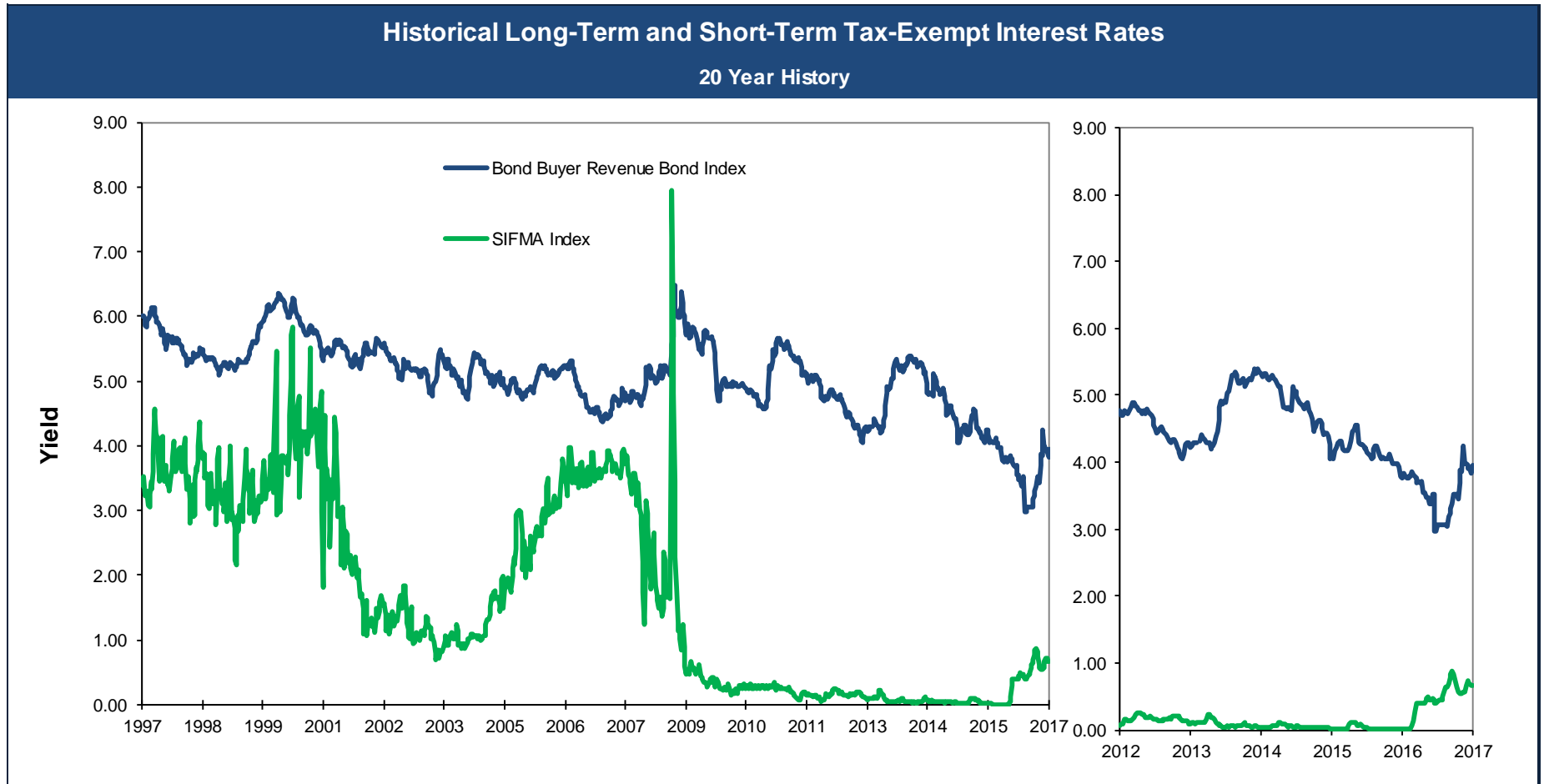
### Variable Rate Pros

- Historically lower rates than fixed rates
- More efficient use of yield curve
- Natural hedge results from short-term investments/operating cash
- Bonds - Typically callable on any interest payment date at par

### Variable Rate Cons

- Interest Rate risk
- Budget uncertainty resulting from potential interest rate volatility
- Bonds - Risks related to credit enhancers/ liquidity providers
- Bonds - Remarketing/liquidity risk

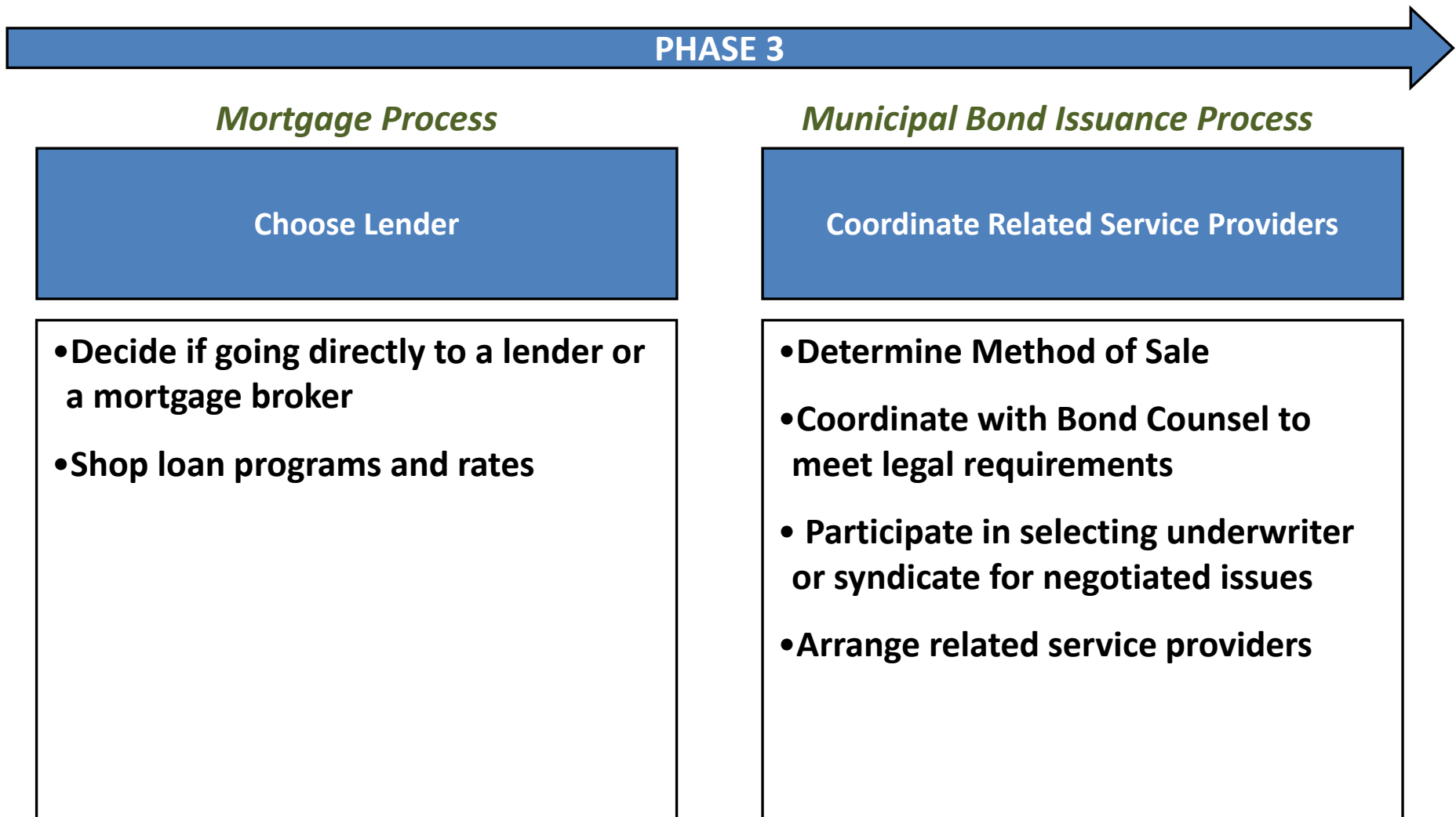
## Short-Term Interest Rates Have Remained Historically Low



Source: Bloomberg

## Phase 3 for Mortgages and Municipal Bonds

---



## Types of Bond Sales

---

- Competitive Sales: select the bid that results in the lowest effective interest cost for the issuer
- Negotiated Sales: interest rates and underwriting spread are determined through negotiation with the underwriter, who has been previously selected to market the bonds
  - Negotiated vs. Competitive: More bonds sell on a negotiated basis these days
    - *Factors to consider include, but are not limited to: credit quality, market conditions, supply and demand of municipal bonds, debt structuring, legal requirements, achieving targeted minority firm representation, etc.*
- Private or Direct Placement: a limited distribution to one or several investors
  - Issues delivered to the Texas Water Development Board or direct bank placements of bonds for example
  - Can be accomplished quickly (typically no need for offering document or ratings), but terms are less flexible

## Competitive vs. Negotiated Sale

### Negotiated Sale

- Pre-selected syndicate negotiates the rates and terms with the issuer and the financial advisor
- Pricing occurs 1 to 3 days prior to the award date
- Size and structure can be finalized at pricing
- Underwriting spreads may be lower since there is less uncertainty during volatile markets
- Significant market data provides comparable transactions for pricing evaluation

Pros	Cons
<ul style="list-style-type: none"> <li>▪ Flexibility in timing of sale to take advantage of market conditions</li> <li>▪ Effective pre-sale education and marketing</li> <li>▪ Reduced need to compensate for risk</li> <li>▪ Ability to reprice with strong order flow</li> <li>▪ Issuer involvement with allocations</li> </ul>	<ul style="list-style-type: none"> <li>▪ Potential criticism of underwriting syndicate selection</li> <li>▪ Need to find market comparisons for price evaluation</li> <li>▪ Potential additional underwriting cost for management fee</li> </ul>

### Competitive Sale

- Bonds sold at a certain date and time
- Once announced, the date, time, size and structure cannot be easily changed
- Limited flexibility could be mitigated with the ability to modify the bid specs before and after the sale
- Underwriter's discount is imputed in the interest rate
- Underwriting spreads may be higher during volatile market and/or with more complex credits
- In today's market, buyers are willing to pay-up for higher quality credits
- Numerous bids result in fair comparison

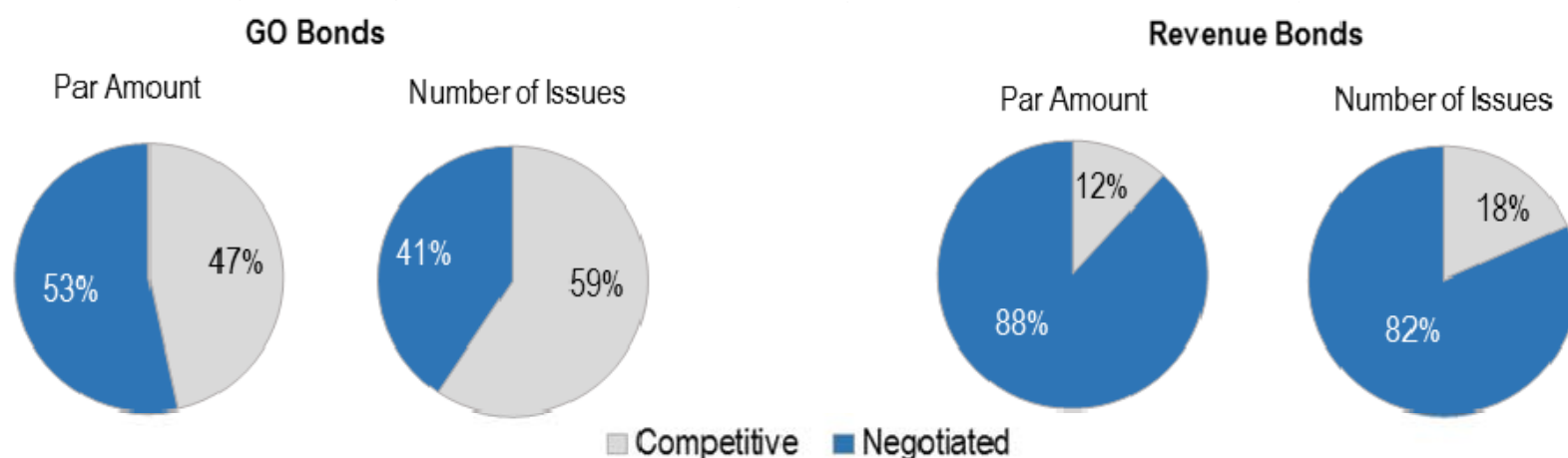
Pros	Cons
<ul style="list-style-type: none"> <li>▪ Competitive posture</li> <li>▪ Simplification of marketing process</li> <li>▪ Objectivity related to underwriter selection</li> </ul>	<ul style="list-style-type: none"> <li>▪ Lowest cost of funds not assured</li> <li>▪ Underwriting risk built into rate</li> <li>▪ Lack of financing input</li> <li>▪ Limited flexibility</li> </ul>

## Which Method is Appropriate?

	Conditions Favoring Competitive Sale	Conditions Favoring Negotiated Sale
<b>-Debt Structure</b> *Pledge *Debt Instrument	General Obligation -Serial or term CIBs	-System or project supported revenues -Derivatives, discounts, CABs, PACs
<b>-Credit Quality</b> *Rating *Outlook	-Highly Rated -Stable	-Lower Rated -Weak or negative
<b>-Market Conditions</b> *Interest Rates *Supply & Demand	-Stable, predictable -Strong investor demand, good liquidity, light forward calendar	-Volatile or declining market -Oversold Market, heavy supply
<b>-Policy Considerations</b> *Participation in Sale of Bonds *Stimulation of Investor Interest	-Broad Market Participation desired for Sale of Bonds/Notes Broad Market Participation desired for Purchase of Bonds/Notes	-Desire to ensure the participation of MBE and/or regional and retail firms -Desire to make bonds/notes available to regional investors

## Methods of Sale

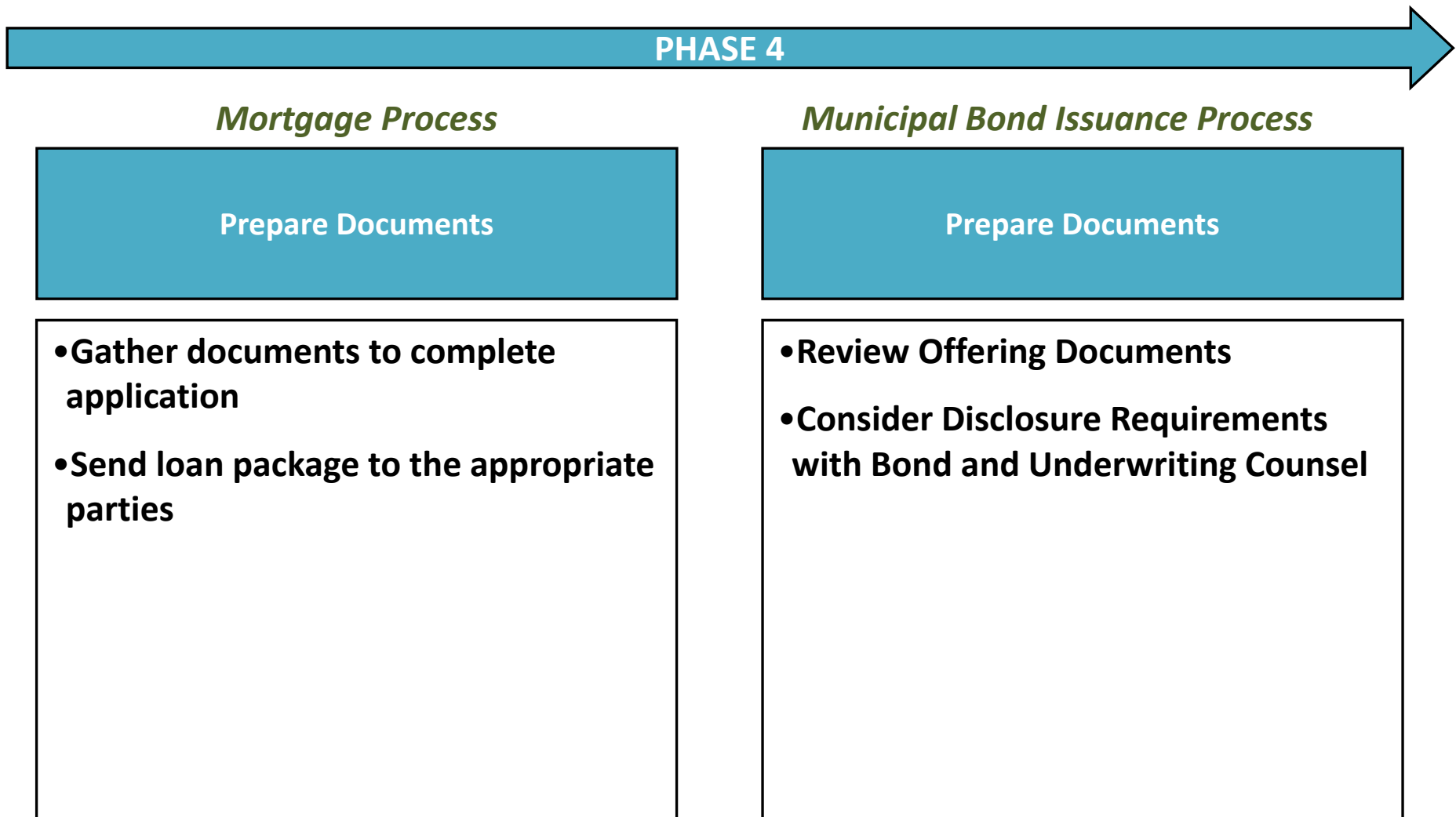
### 2014-2015 Competitive and Negotiated Method of Sale Statistics



(as a percentage)	Competitive Par	Negotiated Par	Competitive Issues	Negotiated Issues
2015 (GO Bonds)	47%	53%	41%	59%
<b>2015 (Revenue Bonds)</b>	<b>12%</b>	<b>88%</b>	<b>18%</b>	<b>82%</b>
2014 (GO Bonds)	45%	55%	60%	40%
<b>2014 (Revenue Bonds)</b>	<b>14%</b>	<b>86%</b>	<b>20%</b>	<b>80%</b>

## Phase 4 for Mortgages and Municipal Bonds

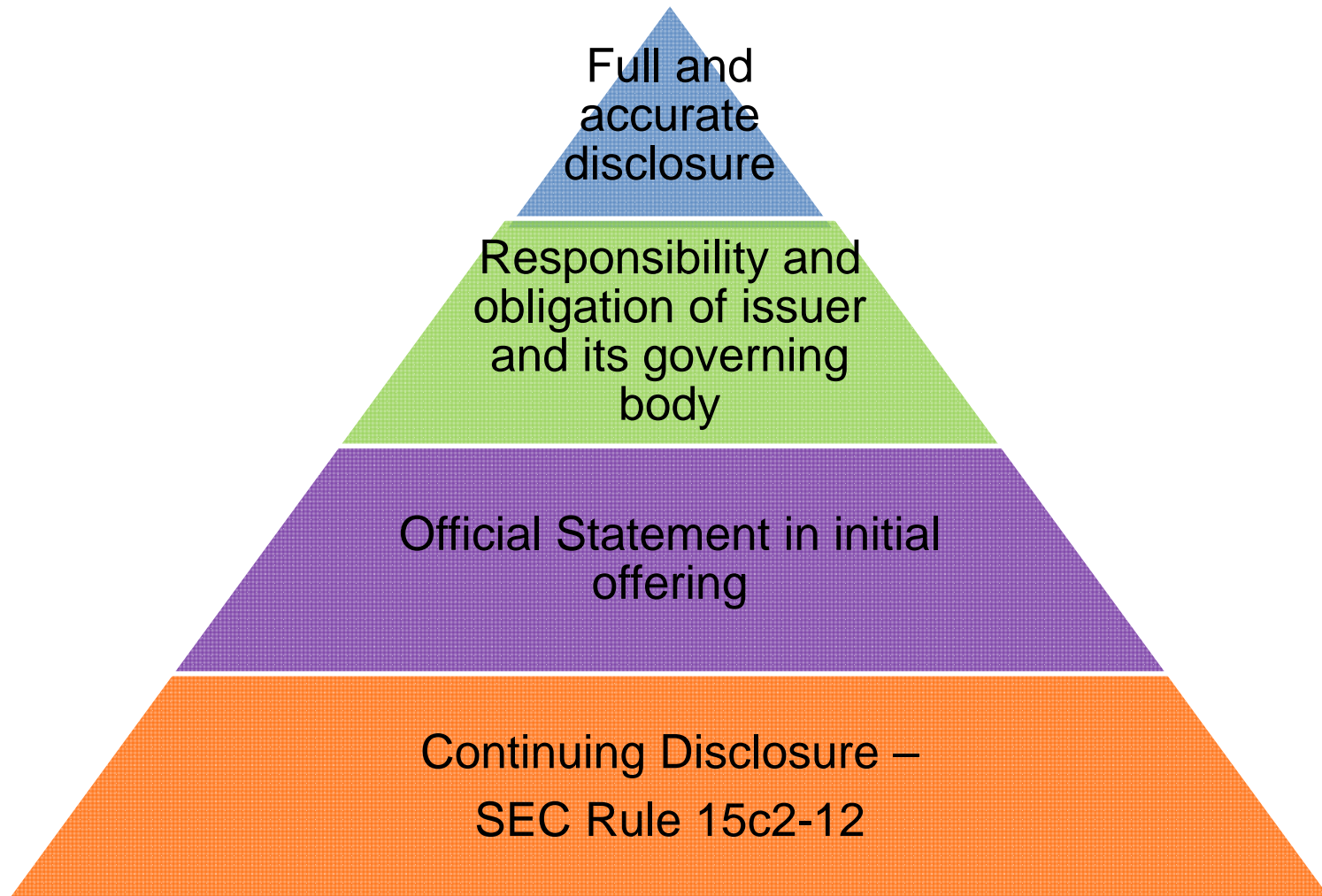
---



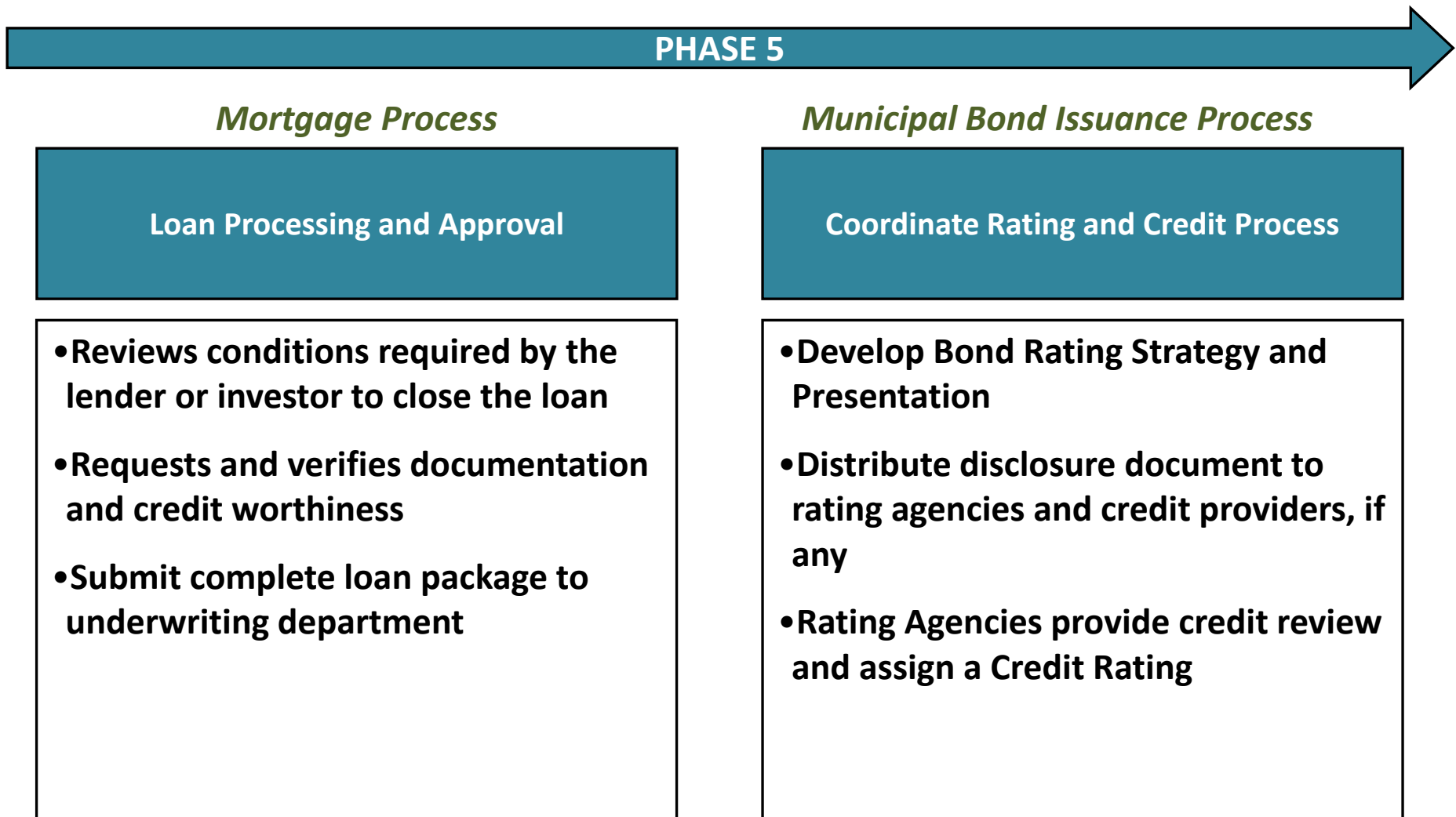


## The Importance of Disclosure

---



## Phase 5 for Mortgages and Municipal Bonds



## Rating Agencies

---

- There are three primary rating agencies
  - Moody's Investors Service
  - Standard & Poor's
  - Fitch Ratings
  - Relatively New Rating Service - Kroll Bond Rating Agency
- Basically evaluate "Willingness" and "Ability" to pay
- Four Primary Categories of Evaluation
  - Governance/Management
  - Financial Position
  - Debt Position
  - Economy
- Standard & Poor's Financial Management Assessment ("FMA")
  - Evaluation of Policies both formal and informal as well as practices embedded in daily operations with a focus on long-term planning

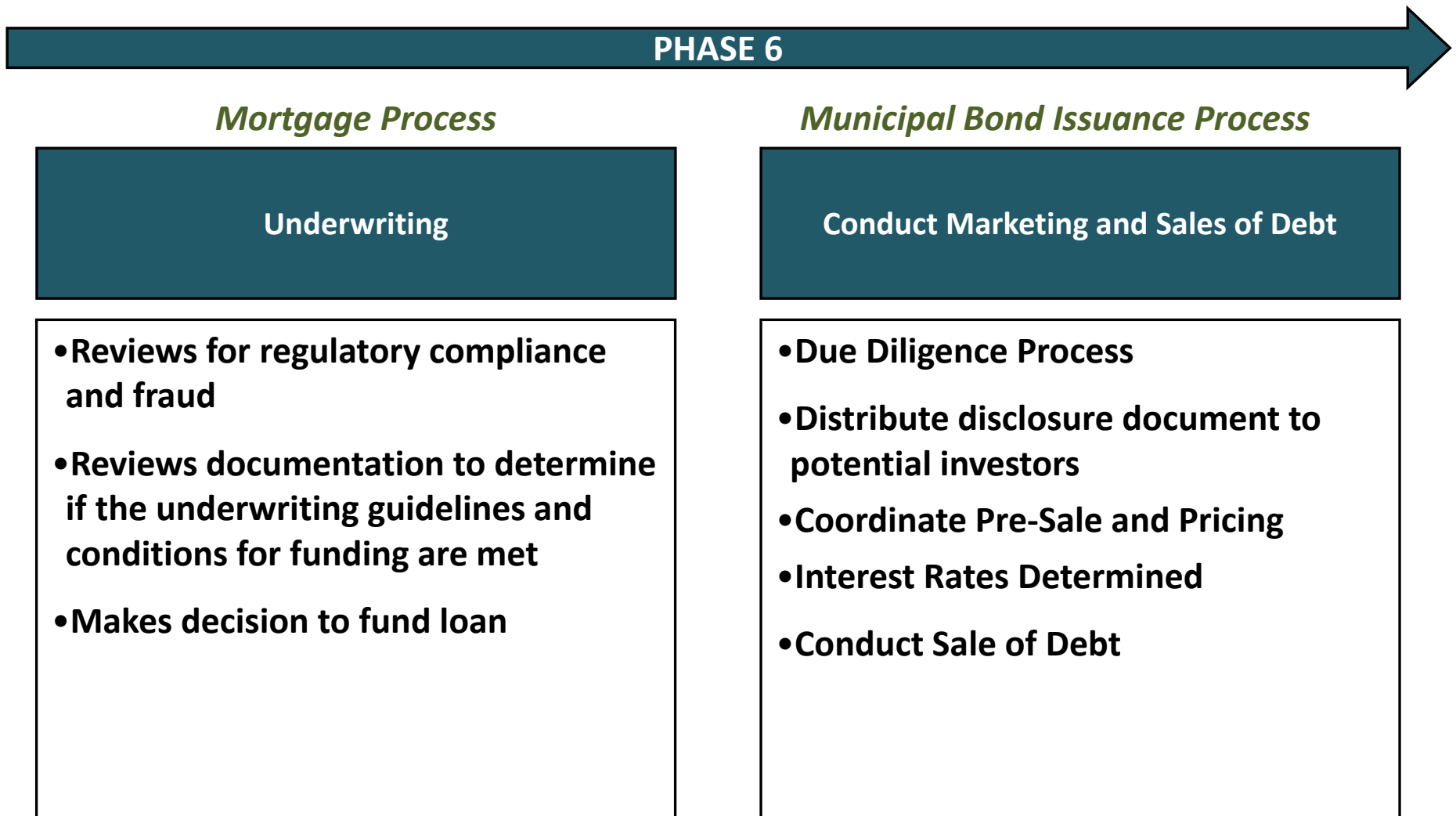
## Rating Agencies – Rating Grades

	Long Term		Short Term (less than 3 years)		
	Moody's	Fitch / S&P	Moody's	S & P	Fitch
Higher quality credit	Aaa	AAA	MIG 1	SP-1+	F1 (+ or -)
	Aa1	AA+	MIG 2	SP-1	F2 (+ or -)
	Aa2	AA	MIG 3	SP-2	F3 (+ or -)
	Aa3	AA-	SG	SP-3	B (+ or -)
	A1	A+			
	A2	A			
	A3	A-			
	Baa1	BBB+			
	Baa2	BBB			
	Baa3	BBB-			
	Ba1	BB+			
	Ba2	BB			



Ratings below the line are speculative grade.

## Phase 6 for Mortgages and Municipal Bonds



## Points and Rate

---

- Just like mortgages, where paying more points can result in a lower interest rate, this concept is also applicable to municipal bonds
- With municipal bonds, the “points” are comparable to the “underwriter’s discount”
- The largest component of the underwriter’s discount is the “takedown”
  - Sales commission
  - Varies, based on market conditions
  - Proper level will assure strong marketing effort, resulting in most favorable interest rates available
  - Typically negotiated in advance of sale

## Insurance

- When a homeowner makes a down payment of less than 20%, lenders require them to get Private Mortgage Insurance, which protects the lender from losing money if the mortgage ends up in bankruptcy
- Municipal bonds have Municipal Bond Insurance, which provides bond holders with an unconditional guaranty to pay should the political subdivision default on its bonds

### Municipal Bond Insurers Ratings Summary

As of August 12, 2016, 8:00 AM Eastern

Insurer	Legend			
	Stable	Negative Outlook	Positive Outlook	
	Watch Negative / Review for Possible Downgrade	Developing Watch / Review With Direction Uncertain	Watch Positive / On Review for Possible Upgrade	
Insurer	Moody's	Standard & Poor's	Fitch	Kroll
Berkshire Hathaway	Aa1 / Stable Outlook (as of 7/22/10)	AA+ / Stable Outlook (as of 2/19/16)	No Rating	No Rating
Build America Mutual	No Rating	AA / Stable Outlook (as of 7/23/12)	No Rating	No Rating
Assured Guaranty	A3 / Stable Outlook (as of 8/08/16)	AA / Stable Outlook (as of 3/18/14)	Ratings Withdrawn (as of 2/24/10)	No Rating
Assured Guaranty Municipal (formerly FSA)	A2 / Stable Outlook (as of 1/17/13)	AA / Stable Outlook (as of 3/18/14)	Ratings Withdrawn (as of 2/24/10)	AA+ / Stable Outlook (as of 11/13/14)
Municipal Assurance Corp. (subsidiary of Assured Guaranty Ltd.)	No Rating	AA / Stable Outlook (as of 3/18/14)	No Rating	AA+ / Stable Outlook (as of 7/22/13)
National Public Finance (formerly MBIA Illinois)	A3 / Negative Outlook as of 7/2/14	AA- / Stable Outlook (as of 3/18/14)	Ratings Withdrawn (as of 6/26/08)	AA+ / Stable Outlook (as of 5/12/14)
Radian	Ba1 / On Review for Upgrade (as of 12/24/14)	AA / Stable Outlook (as of 4/2/15)	Ratings Withdrawn (as of 5/02/08)	No Rating
MBIA	Caal / Negative (as of 5/19/16)	A- / Stable Outlook (as of 3/18/14)	Ratings Withdrawn (as of 6/26/08)	No Rating
Syncora	Ratings Withdrawn (as of 11/8/12)	Ratings Withdrawn (as of 7/28/10)	Ratings Withdrawn (as of 9/05/08)	No Rating
Ambac	Ratings Withdrawn (as of 4/7/11)	Ratings Withdrawn (as of 11/30/10)	Ratings Withdrawn (as of 6/26/08)	No Rating
FGIC (Certain Policies Covered by National)	Ratings Withdrawn (as of 3/24/09)	Ratings Withdrawn (as of 4/22/09)	Ratings Withdrawn (as of 11/24/08)	No Rating
CIFG	Ratings Withdrawn (as of 11/11/09)	AA / Stable Outlook (as of 7/1/16)	Ratings Withdrawn (as of 10/21/08)	No Rating
ACA	No Rating	Ratings Withdrawn (as of 12/15/08)	No Rating	No Rating

*Disclosure:* This is a summary of the current outstanding ratings and outlooks of monoline bond insurers as reported by Moody's Investors Service (Moody's), Standard and Poor's Corporation (S&P), Fitch Ratings (Fitch) and Kroll Bond Rating Agency (Kroll) as of the approximate date and time set forth on this summary. FirstSouthwest does not guarantee the accuracy or completeness of the data set forth herein. For the most accurate and current information, contact Moody's, S&P, and Fitch.

## Phase 7 for Mortgages and Municipal Bonds

### PHASE 7

#### *Mortgage Process*

##### **Closing**

- **Send Closing instructions, closing Package and Funds to Settlement Agent for preparation and execution of closing documents**
- **Close Transaction**
- **Funds Delivered**

#### *Municipal Bond Issuance Process*

##### **Closing and Post-Closing**

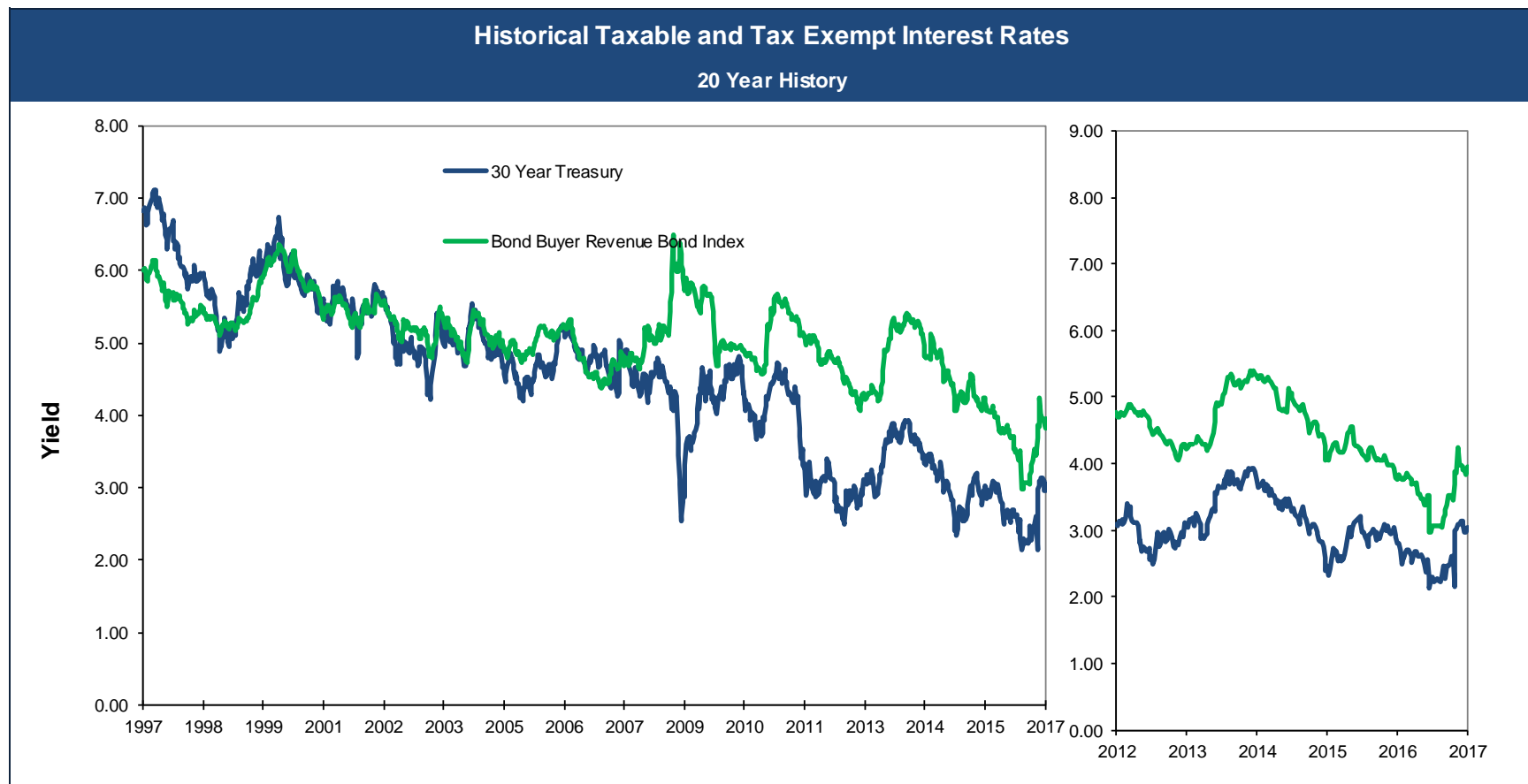
- **Closing Memorandum Prepared and Distributed**
- **Texas Attorney General Approval**
- **Close Transaction**
- **Funds Delivered**
- **Prepare Transaction Summary**
- **SEC 15c2-12 Continuing Disclosure Requirements**
- **Arbitrage/Rebate Compliance**



# How are the Mortgage Process and Bond Issuance Process Different?

## Tax-Exempt vs. Taxable

- Issuers of municipal bonds typically are able to issue debt that is tax-exempt
- This means investors do not have to pay taxes on the earnings from their investments
- This provides issuers a lower cost of funds, which in turn provides more for project funding capacity



## Municipal Bonds Yield Equivalency

---

- Although tax-exempt bonds have lower interest rates or yields, because investors do not have to pay taxes on their income their returns can be higher than the yields on the bonds

Investor Tax Bracket	15%	28%	31%	36%
Tax-Exempt Yields	Taxable Yield Equivalents (%)			
4.5%	5.3%	6.3%	6.5%	7.0%
4.7%	5.5%	6.5%	6.8%	7.3%
5.0%	5.9%	6.9%	7.2%	7.8%
5.5%	6.5%	7.6%	8.0%	8.6%

# Municipal Bonds Must have Some Form of Authorization before Issuance

## General Obligation Bonds (GO)

- Require bond election for authorization
- Issued for any public purpose not to exceed 40 years
  - Real Property
  - Personal Property
  - Legal Judgment
  - Land Acquisition
- Secured by issuer's full faith, credit and ad valorem taxing power
- Attracts low interest rates

## Certificates of Obligation (CO)

- Require no voter authorization
  - A petition signed by 5% of the eligible voters can force an election
- Notice of Intent to Issue is required
  - Publish in the local paper on the same day of two consecutive weeks
  - First notice must be published at least 30 days prior to the sale date
- When secured solely by ad valorem taxes, issued for limited purposes such as land acquisition, judgment funding or purchase of heavy equipment
- When secured by an ad valorem tax and a revenue pledge, issued for any lawful purpose just as GOs
- Sell at interest rates similar to GO Bonds

## Revenue Bonds

- Require no voter authorization
- Issued for revenue producing operating systems/projects
  - Water System
  - Sewer System
  - Sanitation
  - Sales Tax
  - Special Projects
  - Other
- Secured solely by revenues of the operating system
- Sell at interest rates 5 to 10 basis points higher than comparable GOs
- Requires a reserve fund
- Requires minimum coverage (approximately 1.25X or higher)

## Contract Revenue Bonds

- Require no voter authorization
- Secured by either tax, revenue, or both
- Issued for capital improvements
- Entity contracts for capital improvements with third party entities
  - Existing entities (e.g., River Authorities, etc.)
  - Newly created subdivision by entity
- Sell at interest rates similar to revenue bonds

## Debt Instrument Securities Most Frequently Utilized

---

- Tax Supported Bonds:
  - Bonds secured by the full faith and credit of the issuer
  - Does not require a Reserve Fund or other financial covenants
- Revenue Supported Bonds:
  - Secured only by pledge from an enterprise fund or revenue producing project
  - Bondholders solely dependent upon pledged revenues
  - Generally more extensive bond covenants including:
    - Reserve Fund
    - Additional Bonds Test
    - Debt Service Coverage

## Post-Issuance Requirements for Municipal Bonds

---

### Attorney General Approval

- All long-term bond issues in Texas must be approved by the Texas Attorney General
- Confirm compliance with State Law Requirements
- Once approved, the bond issue is incontestable

### Arbitrage Rebate Compliance

- Tax Reform Act of 1986 limits, except with certain exceptions, the ability of a tax-exempt issuer to earn more on its bonds than it is paying
- Calculation at least every five years, until bond proceeds are expended
- Interest earnings above borrower rate, go back to the US Government

### 15c2-12 Continuing Disclosure Compliance

- Similar to the stock market, the SEC requires municipal bond issuers to at least annually provide updated information
- Timeframe generally within 6 to 9 months
- Generally annual reports, and certain financial and statistical information

### Investment of Proceeds

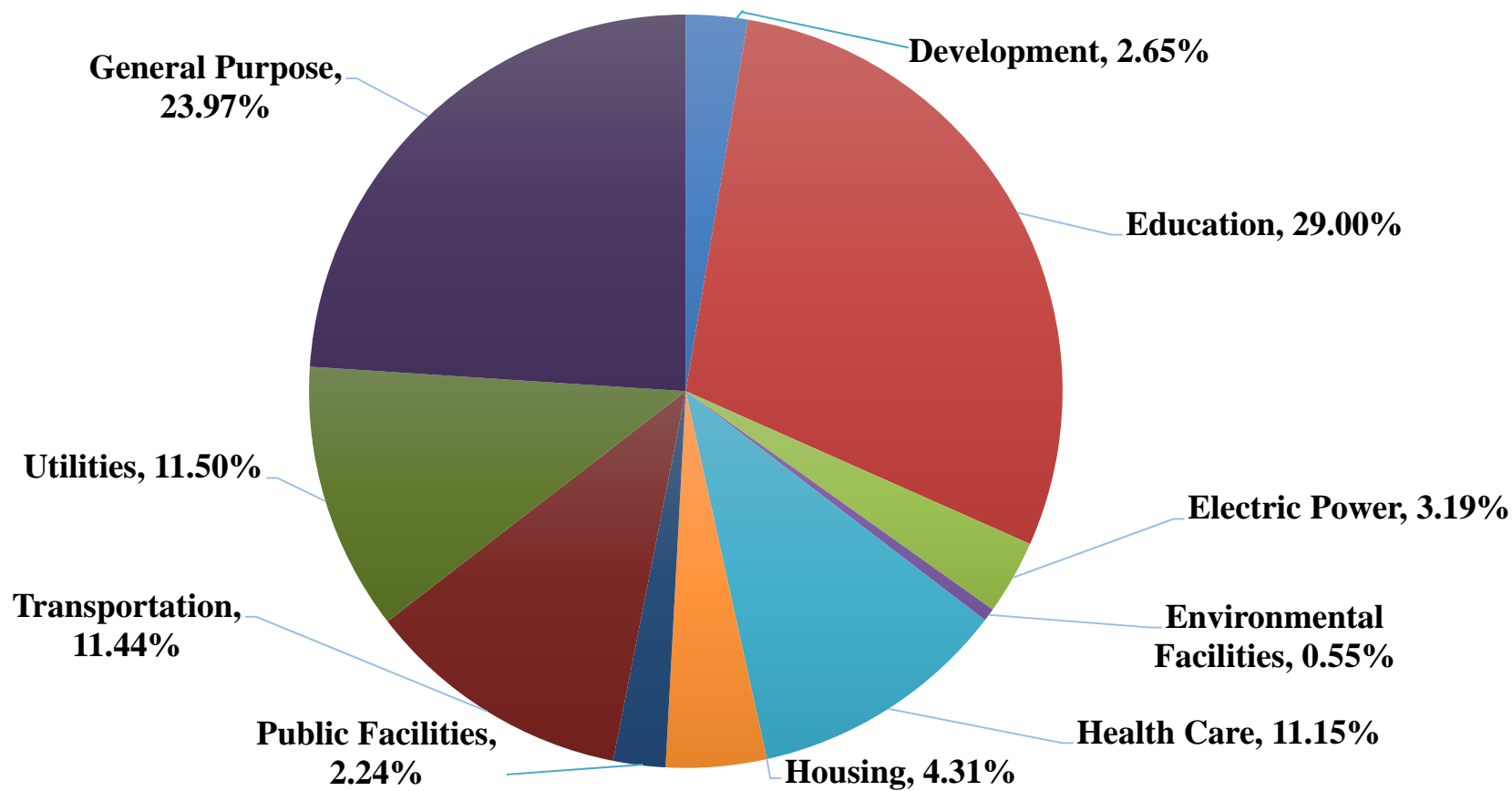
- Most projects take years to build, which provides political subdivisions with an opportunity to invest their bond proceeds
- Generally timed with planned construction draw schedule
- Investment instruments vary significantly in complexity

## Professionals Involved in the Debt Issuance Process

<b>Financial Advisor</b> <ul style="list-style-type: none"> <li>Advises the issuer on all matters regarding bond issuance</li> <li>Issuer's representative in and to the bond market</li> <li>Fiduciary duty to the issuer</li> </ul>	<b>Bond Counsel</b> <ul style="list-style-type: none"> <li>Counsel retained by the issuer to give legal opinions that the issuer is authorized to issue the bonds</li> <li>Provides legal opinion on the tax status of the bonds</li> <li>Prepares bond documents with input from financing team</li> </ul>	<b>Underwriters</b> <ul style="list-style-type: none"> <li>Securities dealer which purchases municipal securities for resale; either by competitive or negotiated sale, and may purchase the securities in a group with other underwriters (an underwriting syndicate)</li> </ul>	<b>Underwriter's Counsel / Disclosure Counsel*</b> <ul style="list-style-type: none"> <li>Underwriter's Counsel represents the underwriter and works toward accurate disclosure in the offering documents</li> <li>Disclosure Counsel conducts independent due diligence to ensure complete and accurate disclosure in offering documents</li> </ul>
<b>Paying Agent / Escrow Agent*</b> <ul style="list-style-type: none"> <li>Paying Agent tracks ownership of the securities and coordinates distribution of funds for debt service payments from the issuer to the bondholders</li> <li>Escrow Agent holds bond proceeds in an escrow and distributes funds as described in the bond documents</li> </ul>	<b>Rating Agencies*</b> <ul style="list-style-type: none"> <li>Rating Agencies evaluate the credit quality of a debt instrument and assign credit (bond) ratings</li> </ul>	<b>Bond Insurance* / Credit Enhancement*</b> <ul style="list-style-type: none"> <li>Organizations such as banks and insurance companies that lend their higher credit quality for a fee and guarantee debt service payments to the bondholders</li> <li>TWDB has loans in its portfolios that have municipal bond insurance</li> <li>As a result of the TWDB's rating requirements, currently no Municipal Bond Insurer is eligible</li> </ul>	<b>Trustee*</b> <ul style="list-style-type: none"> <li>Financial institution with trust powers that acts in a fiduciary capacity to facilitate the collection, escrow, and distribution of funds for the benefit of the bondholder</li> </ul>

\* When Applicable

## Long-term Bond Issuances by Sector: January-December 2016



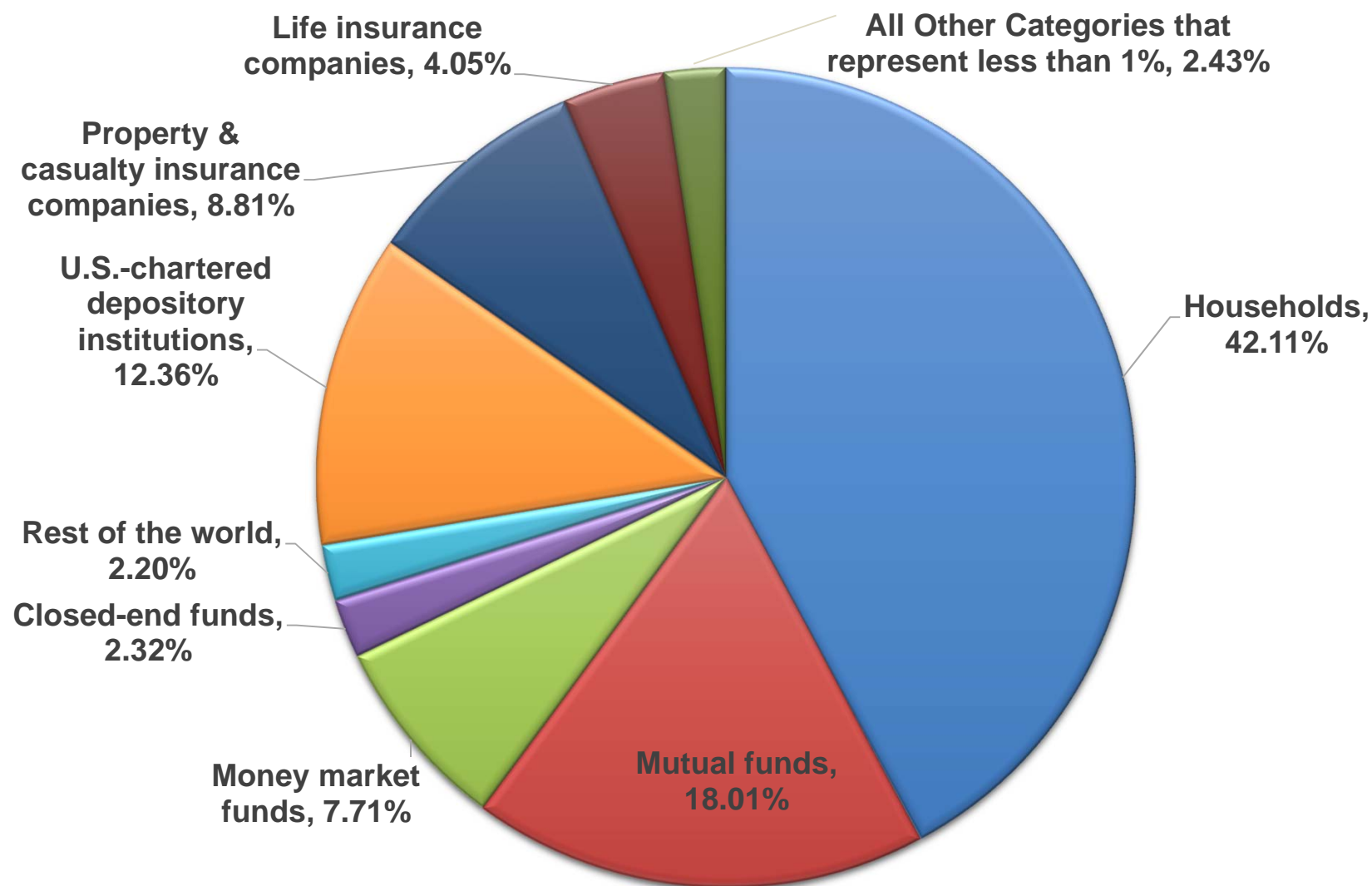
### Number of issues

Development	404	Housing	546
Education	5,285	Public Facilities	506
Electric Power	160	Transportation	471
Environmental Facilities	48	Utilities	1631
Health Care	636	General Purpose	3587

Source: Bond Buyer



## Holder of Municipal Bonds in Calendar Year 2014



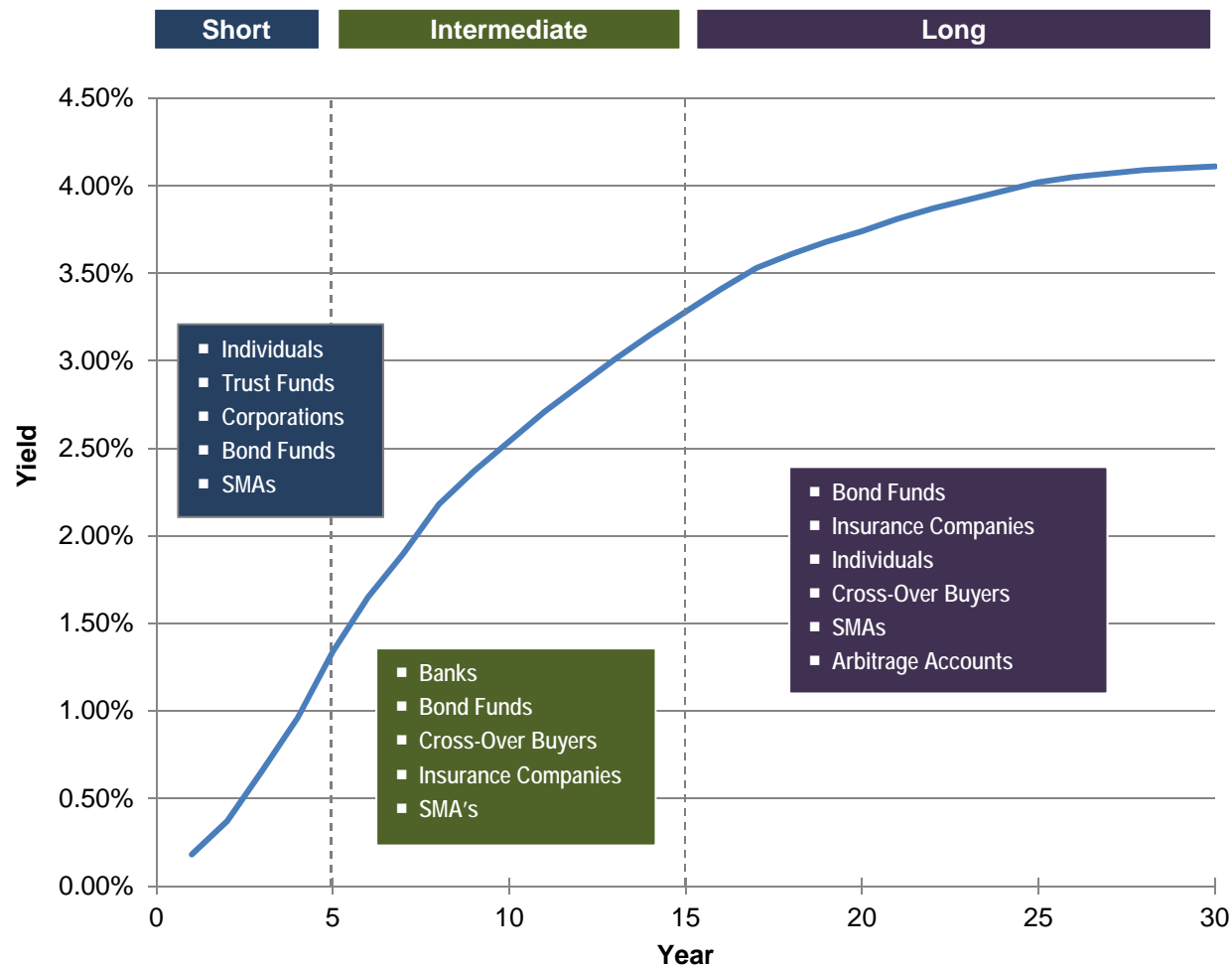
Source: Bond Buyer

## Municipal Bond Investors

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014*
TOTAL DEBT OUTSTANDING	\$ 3,019	\$ 3,189	\$ 3,425	\$ 3,517	\$ 3,673	\$ 3,772	\$ 3,719	\$ 3,714	\$ 3,671	\$ 3,652
HELD BY (IN BILLIONS OF \$'s):										
Households	1,601	1,636	1,674	1,721	1,828	1,872	1,806	1,661	1,605	1,538
Mutual funds	311	344	372	389	479	526	541	627	614	658
Money market funds	349	392	497	510	440	387	357	337	308	282
Closed-end funds	89	89	91	78	81	82	83	86	84	85
Exchange-traded funds	0	0	1	2	6	8	9	12	11	15
Nonfinancial corporate businesses	32	28	29	26	27	24	22	23	22	13
Nonfarm noncorporate businesses	4	6	5	5	5	6	6	6	6	7
Government-sponsored enterprises	40	36	33	31	29	25	21	17	13	11
State and local government general funds	7	8	10	10	12	13	13	14	14	14
Rest of the world	29	34	45	51	59	72	72	72	76	80
U.S.-chartered depository institutions	166	190	202	222	224	255	297	365	419	452
Foreign banking offices in U.S.	0	0	0	0	0	0	0	0	0	0
Banks in U.S.-affiliated areas	1	1	2	3	4	3	3	3	4	3
Credit unions	0	0	0	0	0	0	3	4	5	4
Property and casualty insurance companies	313	335	371	382	369	348	331	328	326	322
Life insurance companies	33	37	41	47	73	112	122	132	142	148
State and local government retirement funds	2	2	2	1	1	2	2	2	3	4
Brokers and dealers	43	51	50	39	35	40	31	27	19	19

Source: Bloomberg

# Investors Along the Yield Curve



## Investors

### Retail

- Individual Investors
- Includes Trust and/or Advisory
- Separately Managed Accounts (SMAs)

### Institutional

- Property and Casualty Insurance Companies
- Bond Funds
- Other large buyers such as Large Corporations
- Hedge Funds/Trading Accounts
  - Dealer Tender Option Bonds (TOBs)
  - Smaller share than before

### Middle Market

- Banks
- Small Mutual Insurance Companies
- Local and Regional Money Managers and Investment Advisors

# What is the difference between a Loan and a Bond?

## What are the Differences in a Loan and a Bond?

---

### Loan

- An Agreement Between Parties
- Generally defined Terms of Repayment
- Early Pay-Off Provisions Outlined

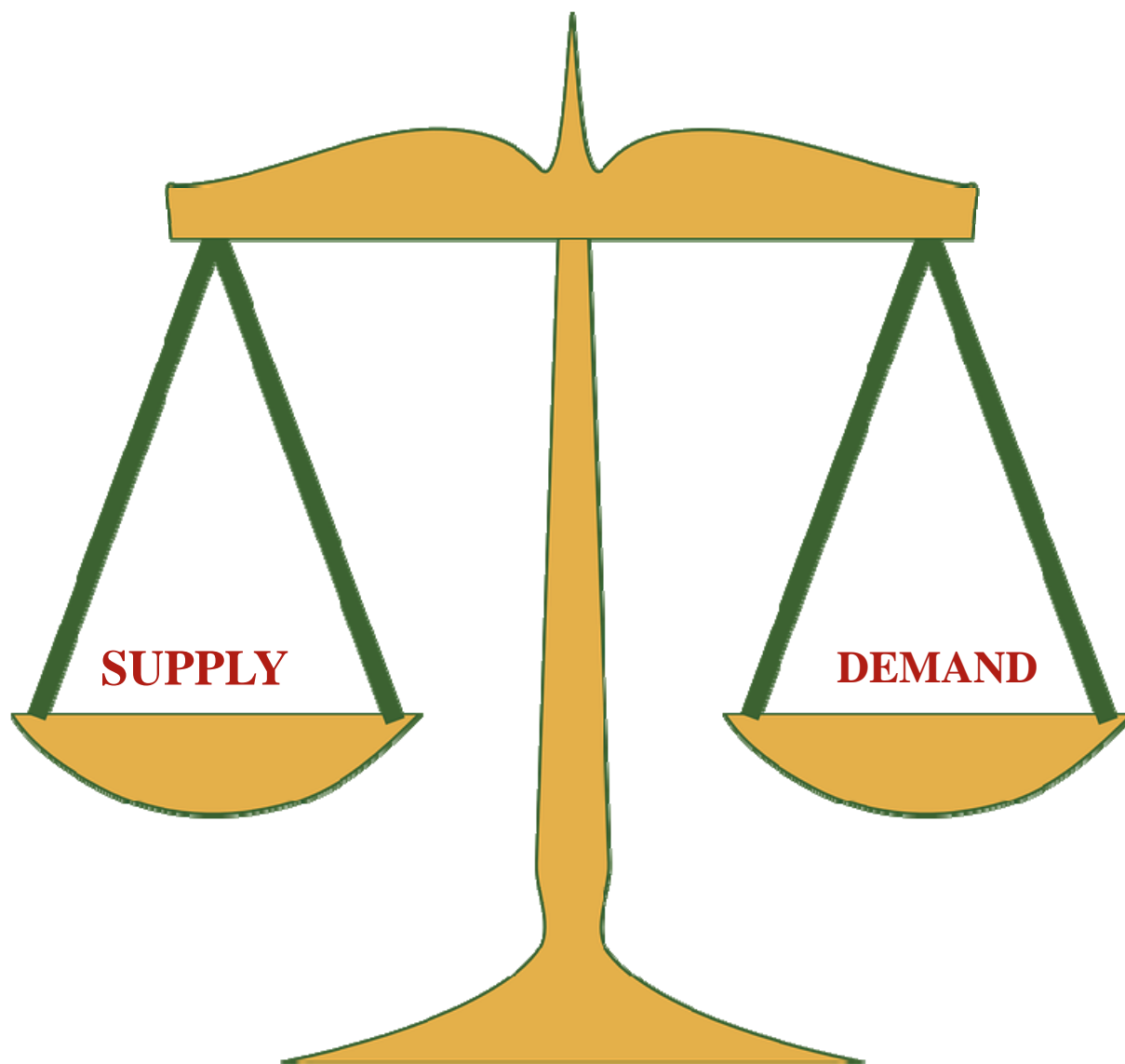
### Municipal Bond

- Subject to Federal and State Law Requirements
- Subject to SEC Requirements
- Generally a Disclosure Document or Placement Memorandum is required

# What Impacts Interest Rates?

## What Impacts Interest Rates?

---



## Economic Summary Week of January 9 – January 13, 2017

### Market Movers

Source: Bloomberg

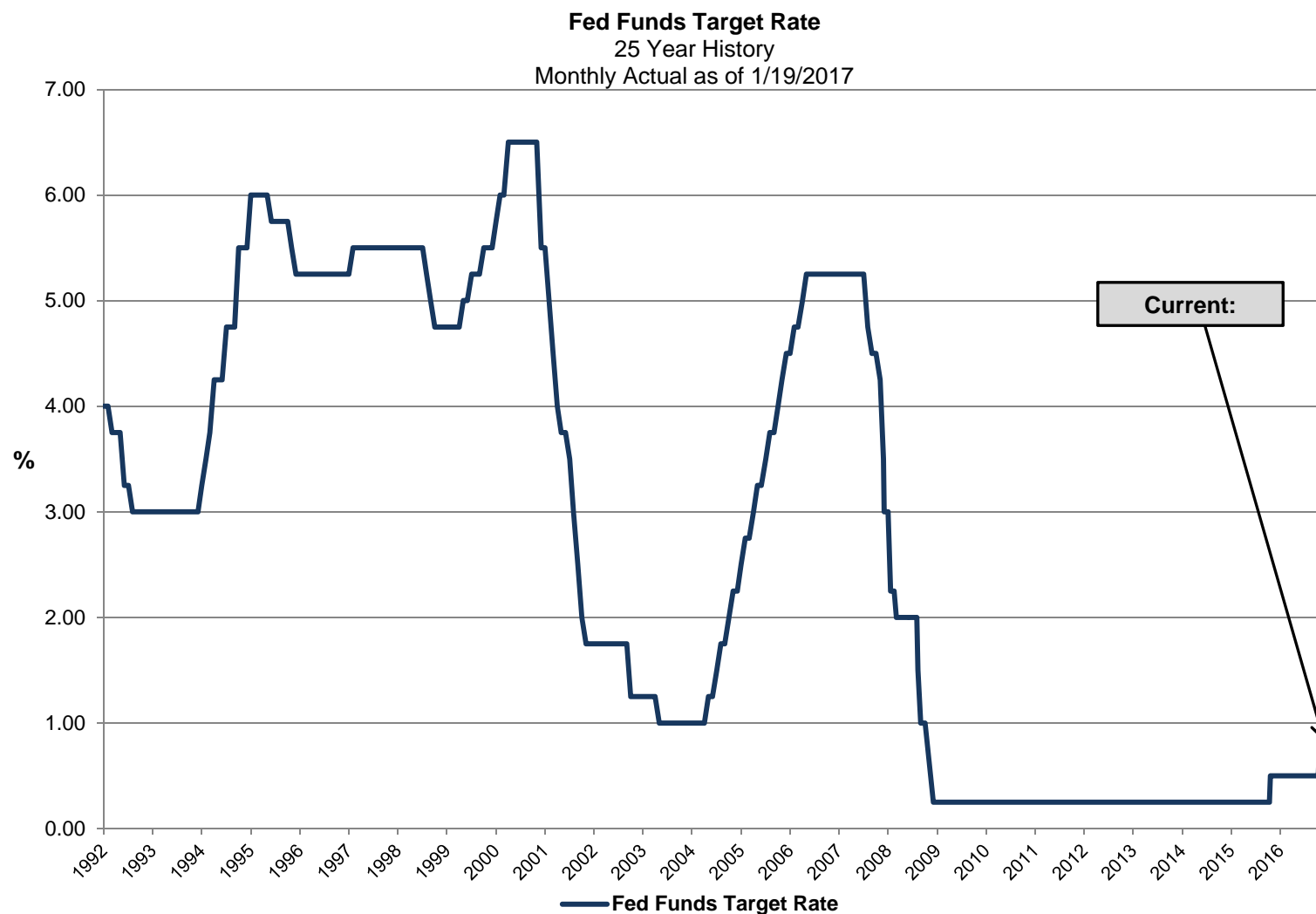
Date	Event	Estimate	Actual
1/13	PPI Ex Food and Energy MoM	0.10%	0.20%
1/13	PPI Final Demand MoM	0.30%	0.30%
1/13	PPI Ex Food, Energy, Trade MoM	0.20%	0.10%
1/13	PPI Final Demand YoY	1.60%	1.60%
1/13	PPI Ex Food and Energy YoY	1.50%	1.60%
1/13	PPI Ex Food, Energy, Trade YoY	--	1.70%
1/13	Retail Sales Advance MoM	0.70%	0.60%
1/13	Retail Sales Ex Auto MoM	0.50%	0.20%
1/13	Retail Sales Ex Auto and Gas	0.40%	0.00%
1/13	U. of Mich. Sentiment	98.5	98.1
1/17	Empire Manufacturing	8.1	--
1/18	CPI MoM	0.30%	--
1/18	CPI Ex Food and Energy MoM	0.20%	--
1/18	CPI YoY	2.10%	--
1/18	CPI Ex Food and Energy YoY	2.20%	--
1/18	Real Avg Weekly Earnings YoY	--	--
1/18	Real Avg Hourly Earning YoY	--	--
1/18	Industrial Production MoM	0.60%	--
1/18	Capacity Utilization	75.40%	--
1/18	Manufacturing (SIC) Production	0.40%	--

### Fed Outlook

Date of FOMC Meeting	2/1/17	3/15/17	5/3/17	6/14/17	7/26/17	9/20/17	11/1/17	12/13/17	1/31/18	3/15/18
FED Funds Forecast (Bloomberg)	0.50%	0.75%	0.75%	1.00%	1.00%	1.25%	1.25%	1.25%	1.25%	1.50%



# Fed Funds Rate History



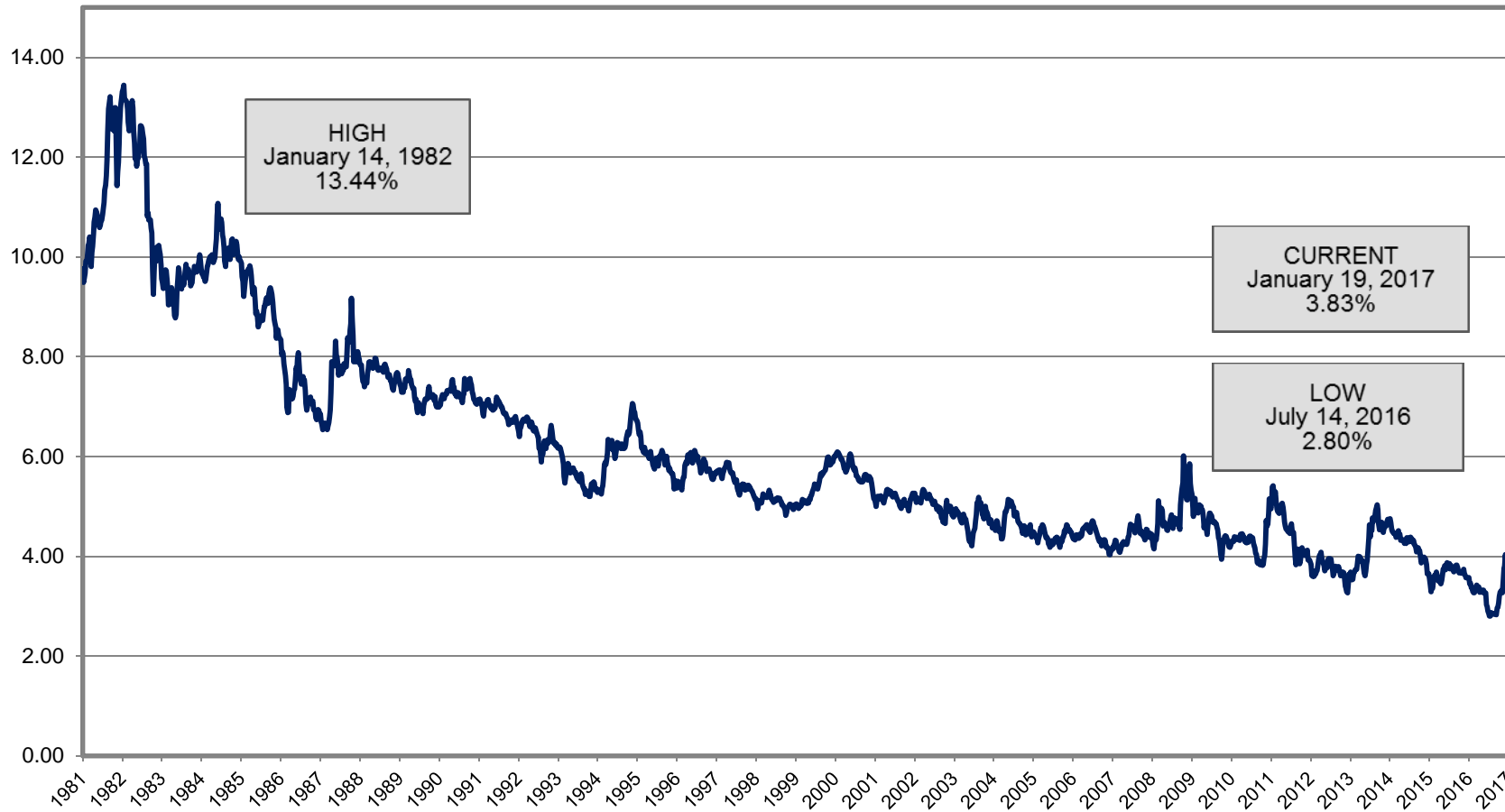
This graph depicts historical interest rates and their respective relationships. Future interest rates are dependent upon many factors such as, but not limited to, interest rate trends, tax rates, the supply and demand of short term securities, changes in laws, rules and regulations, as well as changes in credit quality and rating agency considerations. The effect of changes in such factors individually or in any combination could materially affect the relationships and effective interest rates. These results should be viewed with these potential changes in mind as well as the understanding that there may be interruptions in the short term market or no market may exist at all.

## Bond Buyer's Index of 20 Municipal Bonds

### "Bond Buyer's" Index of 20 Municipal Bonds

Historical Rates Since January 1, 1981

Weekly Actual as of January 19, 2017



This graph depicts historical interest rates and their respective relationships. Future interest rates are dependent upon many factors such as, but not limited to, interest rate trends, tax rates, the supply and demand of short term securities, changes in laws, rules and regulations, as well as changes in credit quality and rating agency considerations. The effect of changes in such factors individually or in any combination could materially affect the relationships and effective interest rates. These results should be viewed with these potential changes in mind as well as the understanding that there may be interruptions in the short term market or no market may exist at all.

## Bond Buyer's Index of 20 Municipal Bonds

### "Bond Buyer's" Index of 20 Municipal Bonds

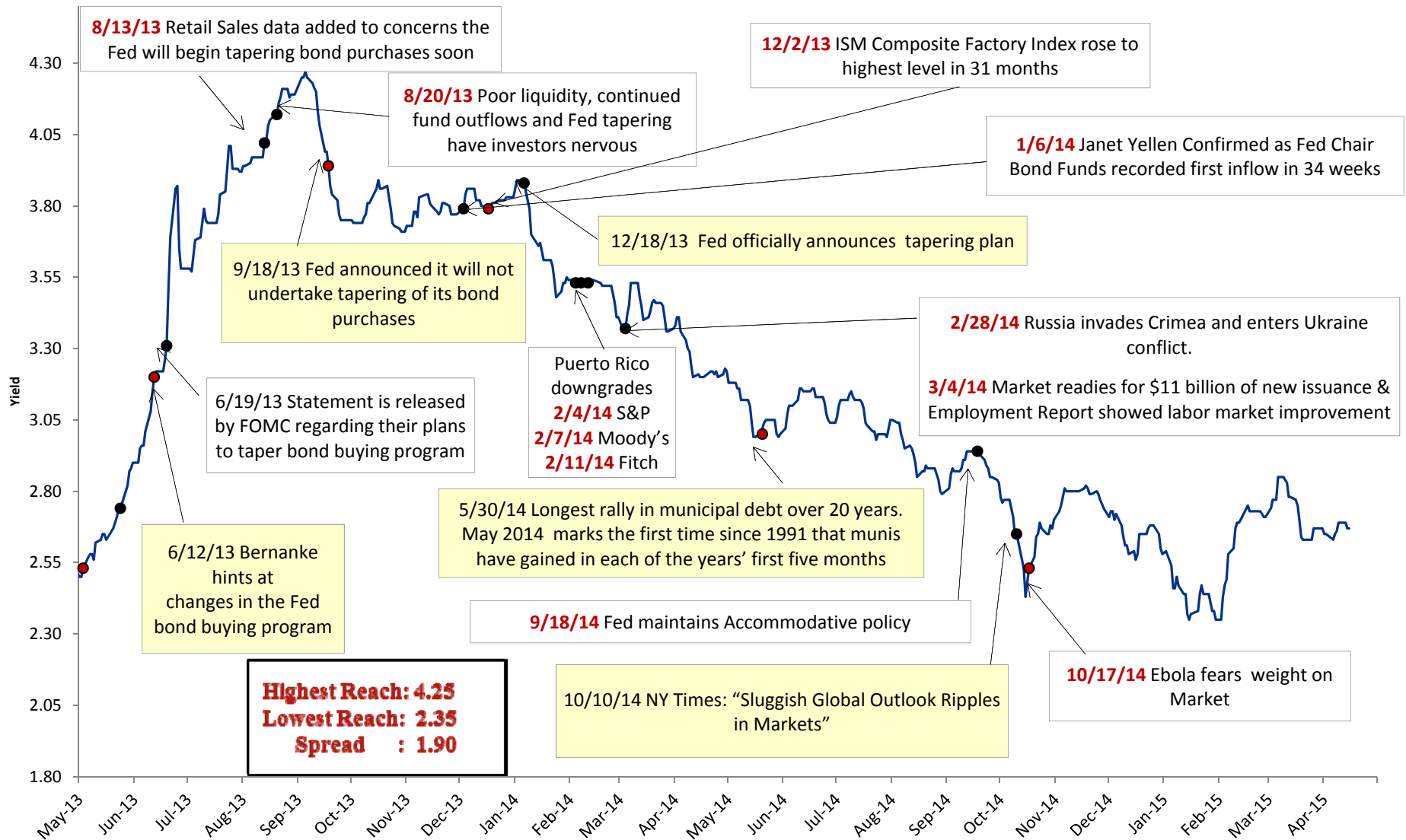
5-Year History

Weekly Actual as of January 19, 2017



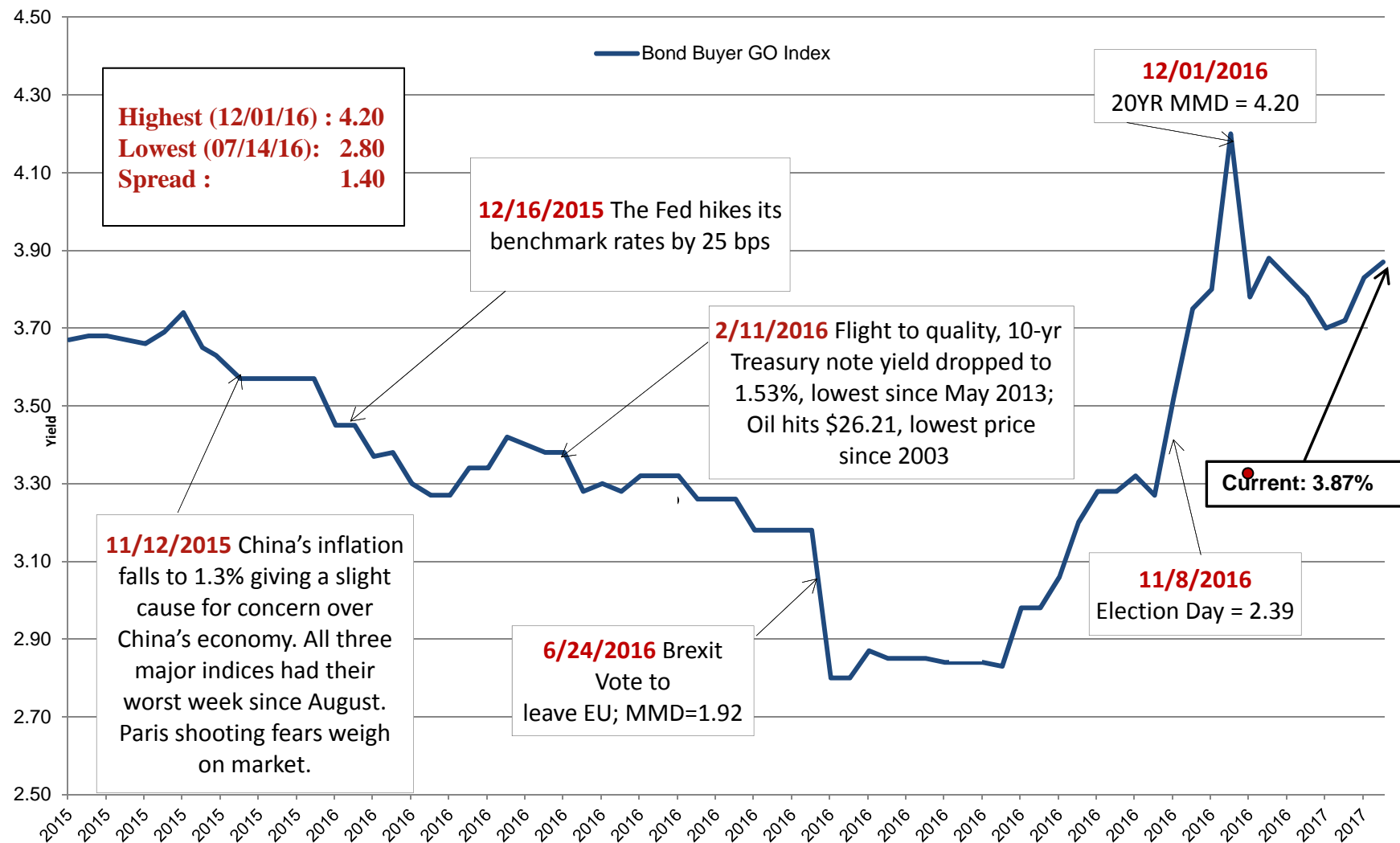
This graph depicts historical interest rates and their respective relationships. Future interest rates are dependent upon many factors such as, but not limited to, interest rate trends, tax rates, the supply and demand of short term securities, changes in laws, rules and regulations, as well as changes in credit quality and rating agency considerations. The effect of changes in such factors individually or in any combination could materially affect the relationships and effective interest rates. These results should be viewed with these potential changes in mind as well as the understanding that there may be interruptions in the short term market or no market may exist at all.

## Change in 20-Year MMD Since May 1, 2013 through April 30, 2015



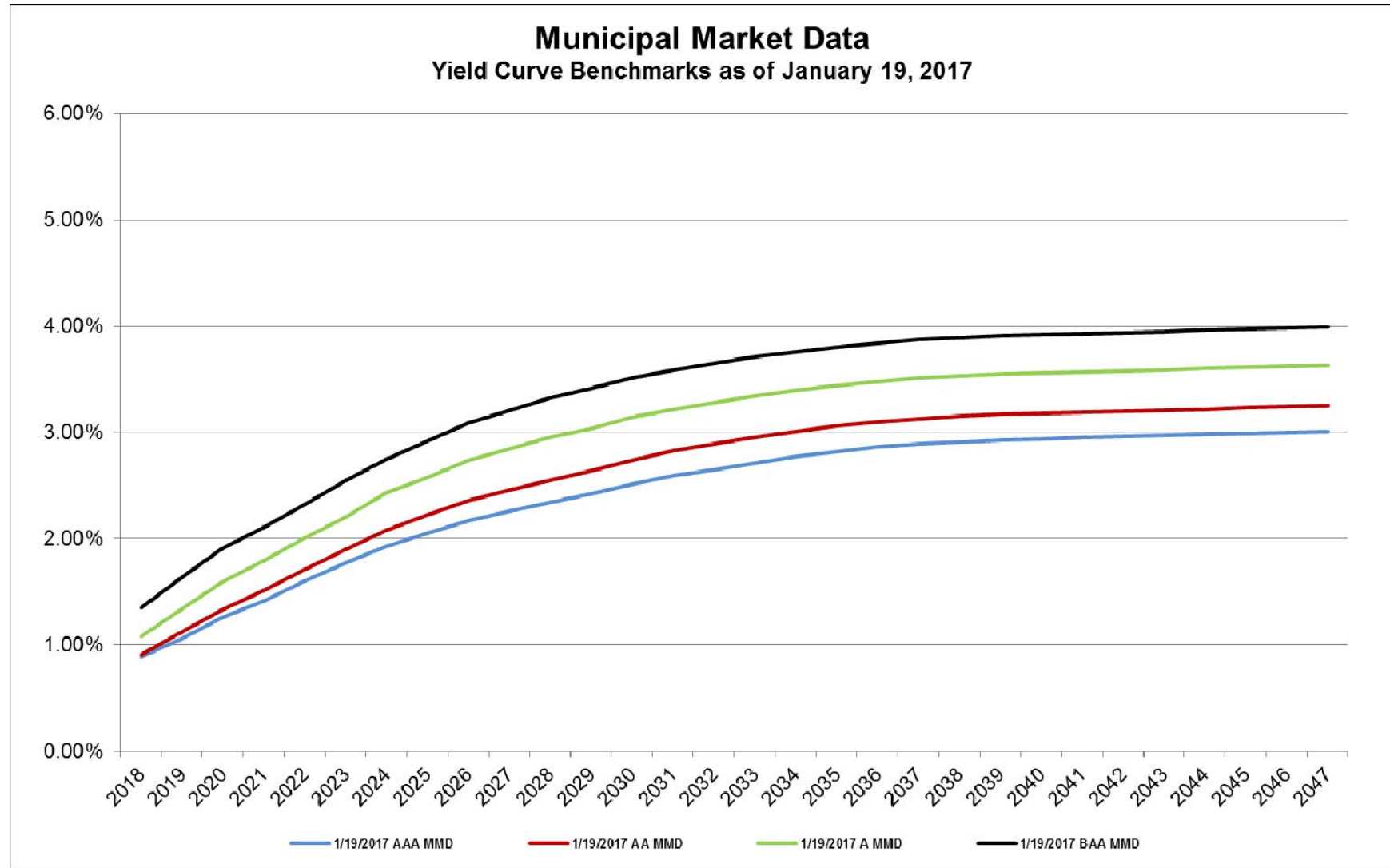
Source: Thomson Reuters (TM3) MMD Interactive

## Change in 20-Year MMD Since October 1, 2015

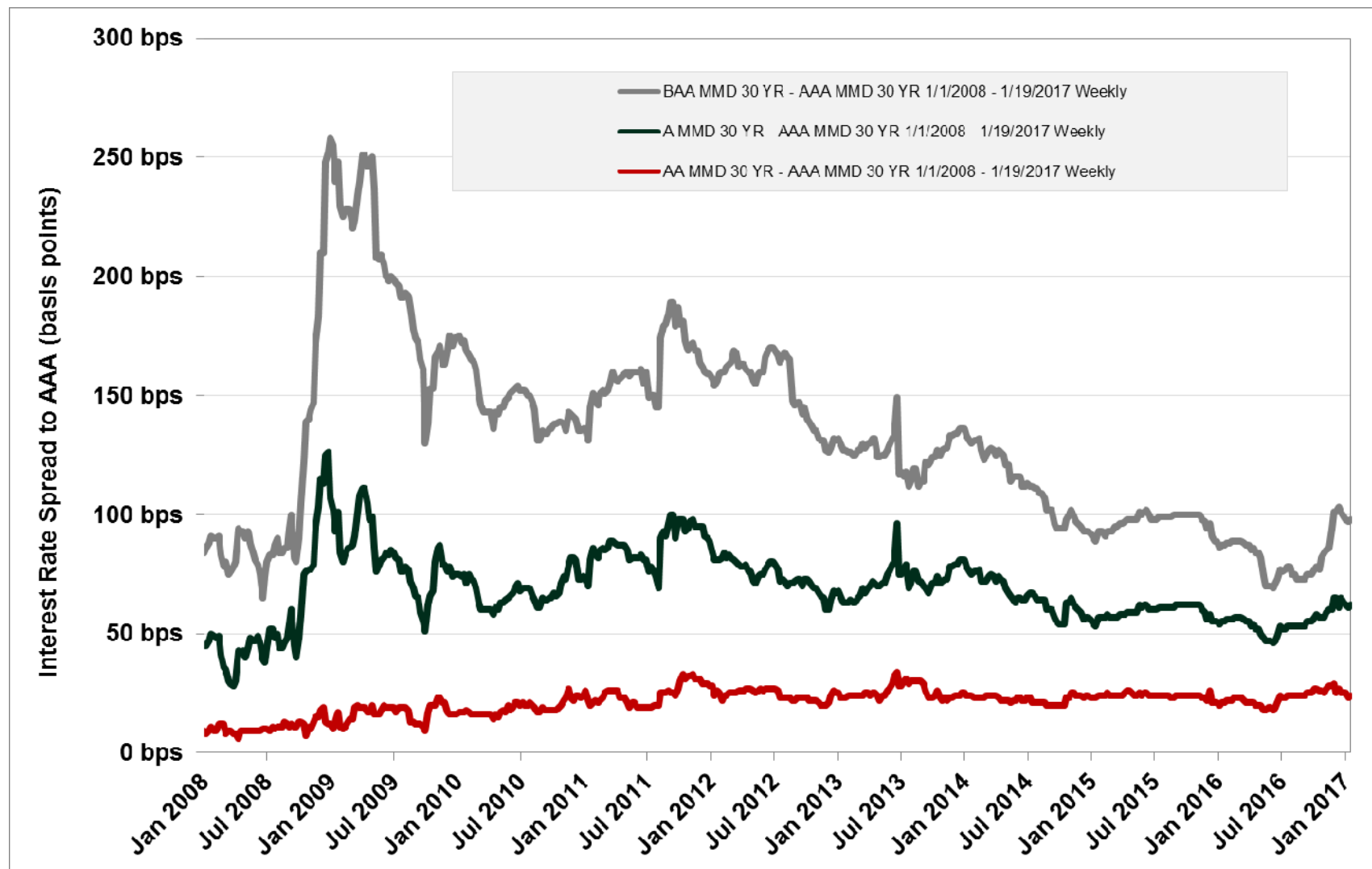


Source: Thomson Reuters (TM3) MMD Interactive

## MMD Yield Curve Changes

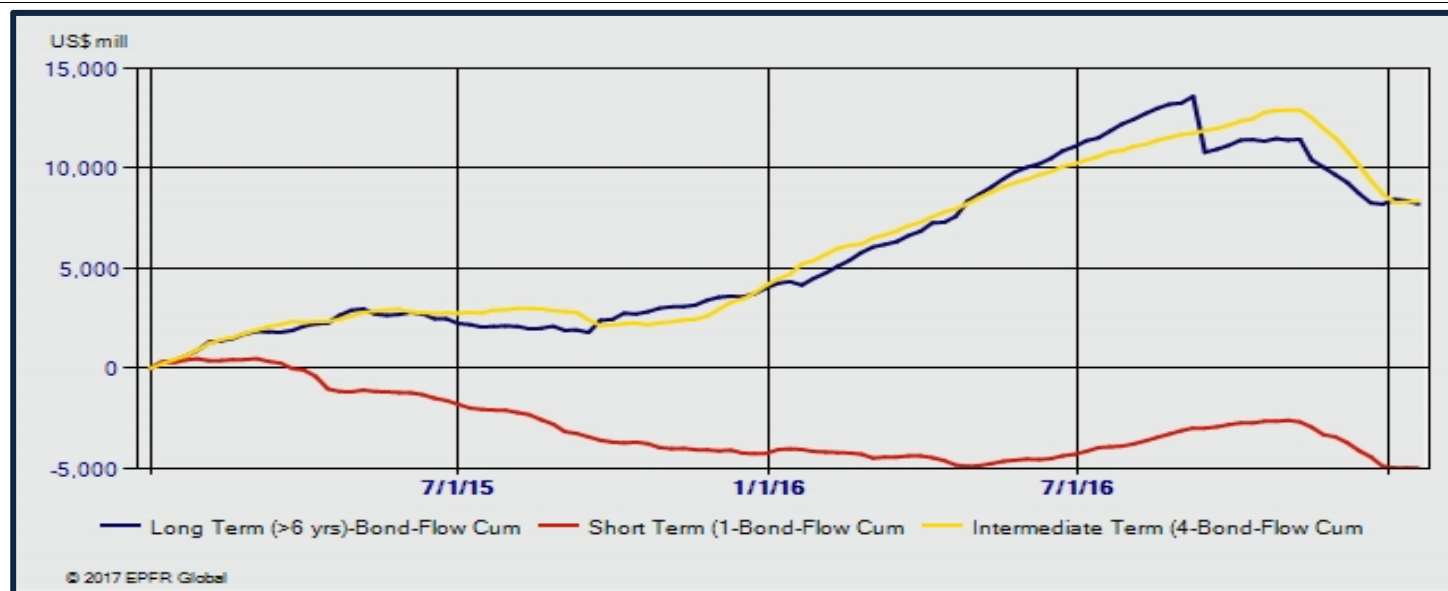


## Credit Interest Rate Spread to AAA MMD



## Municipal Bond Funds Outflows Have Been Significant Since the Election

Cumulative Bond Flows Since January 1, 2015



Monthly Average Bond Flows Since January 1, 2015





## U.S. Interest Rate Forecasts

	<b>Market Yield</b>	<b>Q1 17</b>	<b>Q2 17</b>	<b>Q3 17</b>	<b>Q4 17</b>	<b>Q1 18</b>
US – 30-year	3.01	3.13	3.23	3.32	3.41	3.49
US – 10-year	2.42	2.49	2.61	2.70	2.81	2.87
US – 2-year	1.16	1.24	1.39	1.53	1.69	1.83
US – 3-Month Libor	1.04	1.08	1.24	1.41	1.59	1.77
Fed Funds Target Rate	0.75	0.80	1.00	1.10	1.35	1.45
<b>2 Year – 10-Year Spread</b>	<b>1.26</b>	<b>1.25</b>	<b>1.22</b>	<b>1.17</b>	<b>1.12</b>	<b>1.04</b>
<b>2 Year – 30-Year Spread</b>	<b>1.85</b>	<b>1.89</b>	<b>1.84</b>	<b>1.79</b>	<b>1.72</b>	<b>1.66</b>
<b>10 Year – 30-Year Spread</b>	<b>0.59</b>	<b>0.64</b>	<b>0.62</b>	<b>0.62</b>	<b>0.60</b>	<b>0.62</b>

Source: Bloomberg

## MMA Disclosure

---

This general market commentary was written by Municipal Market Analytics, Inc. [MMA] and is sponsored by Hilltop Securities, Inc. [HilltopSecurities]. It is intended for educational and informational purposes only and does not constitute legal or investment advice, nor is it an offer or a solicitation of an offer to buy or sell any investment or other specific product. Information provided in this market commentary was obtained from sources that are believed to be reliable; however, it is not guaranteed to be correct, complete, or current, and is not intended to imply or establish standards of care applicable to any attorney or advisor in any particular circumstances. The statements within constitute the views of MMA as of the date of the report and may differ from the views of HilltopSecurities. In addition, the views are subject to change without notice. This market commentary represents historical information only and is not an indication of future performance. This market commentary may not be shared with anyone other than the intended recipient without the explicit written consent of HilltopSecurities.

This information is intended to be a summary of general market information. HilltopSecurities is not recommending an action to you as the municipal entity or obligated person. This commentary does not represent municipal advice pursuant to Section 15B of the Exchange Act. HilltopSecurities is acting for its own interests. You should discuss any information and material contained in this communication with any and all internal or external advisors and experts that you deem appropriate. When not already acting as a municipal advisor, HilltopSecurities could seek to serve as an underwriter on a future transaction. The primary role of an underwriter is to purchase securities with a view to distribution in an arms-length, commercial transaction with the issuer. The underwriter has financial and other interests that differ from those of the issuer.

This communication is intended for issuers for educational and informational purposes only and does not constitute legal or investment advice, nor is it an offer or a solicitation of an offer to buy or sell any investment or other specific product or service. Financial transactions may be dependent upon many factors such as, but not limited to, interest rate trends, tax rates, supply, change in laws, rules and regulations, as well as changes in credit quality and rating agency considerations. The effect of such changes in such assumptions may be material and could affect the projected results. Any outcome or result HilltopSecurities, or any of its employees, may have achieved on behalf of our clients in previous matters does not necessarily indicate similar results can be obtained in the future for current or potential clients. HilltopSecurities makes no claim the use of this communication will assure a successful outcome. This communication is intended for institutional use only. For additional information, comments or questions, please contact Hilltop Securities, Inc.